POPULAR Computing WEEKLY

Only 40p.

14 – 20 February 1985

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Vol 4 No 7

Black week for Acorn

ARE YOU THE UK'S GREATEST GAMES WIZARD? FIND OUT ON P36!

THE FUTURE of Acorn's BBC and Electron computers is seriously in doubt after the company last week suspended sales of its shares after they had fallen to a low of 23p

The suspension at 2 52 pm on Wednesday – leaving the shares at 25p – came after a week of futher difficulties for the troubled company.

Increasing speculation and rumour about the future of Acorn began after the group ten days ago appointed a temporary chief executive, Dr Alexander Reid, to attend to the day-to-day running of Acorn Computers

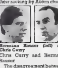
Shortly after his appointment Acorn made the first redundancies at its Cambridge headquarters – shedding 31 of its 450 staff

On Wednesday, the company announced that it had split from its prestigious financial advisors, Lazards, and that its stockbrokers, Cazenove, had resigned Following the departure of Cazenove, Acorn's shares were suspended and merchant bankers, Close Broth ers, has been appointed by Acorn to replace Lazards. Since then Acorn has been in discussions with Close Brothers regarding a radical reorganisation of the company and an announcement is expected this week

In the meantime, Acorn also cut down the number of its distributors from 17 to six, and abandoned its plan to take over Torch Computers

"Acorn is currently involved in determining an internal reorganisation", said a spokeswoman for the company Acorn has declined to comment any further on its position

The Stock Exchange has launched an enquiry into the dealings in Acorn shares in the four days prior to their suspension Acorn shareholders were not told of the Lazards split until last Wednesday, four days after their sacking by Acorn chief's



Hermann Hauser (left) and Chris Curry

Chris Curry and Hermann Hauser

The disagreement between Lazards and Acorn is believed to have centred on a difference over the best approach to solve the compa-

continued on page 5 ▶

Bizarre move on Plus/4

COMMODORE has followed Sinclair and Acorn and has cut its prices – but only on its new Plus/4 micro

The Plus/4 comes down to £149 99 slashed from £299 99

The C16 remains at £130, and the Commodore 64 stays for the time being at £199 99

Commenting on the new price, Commodore's general



manager, Howard Stanworth, said, "At £150, we're offering the public a powerful and versatile computer at a price that until now was designed only for first time buyers "

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Lynx 128K rises from the ashes

PRODUCTION of the 128K version of the Lynx computer – the 'Laureate' – is to begin again, selling for a competitive £299

Anston Technology, which shortly before Christmas bought the assets to Campters, after its receivership, and the rights to the name Lynx, has announced new manufacturing plans for the Lynx range.

'Production of the Lynx 128K and disc drives will restart shortly at Chapman-

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FIND YOUR LOCAL COMPUTER CLUB – P10


MOON CRESTA
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MGX3
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INCENTIVE



View

"The home computer bubble has burst." How often have you read that in the last week?

Of course it is nonsense. The home computer industry may not be increasing in size at the speed it once was, but still increasing it is.

The City's current attack of nerves concerning all things micro and the media hype that blows up a spate of bad news into the end of the world as we know it is an oversimplified view of the last two weeks' events

In any business there are winners and losers. With the micro industry, something approaching 60 per cent of sales are made in the three weeks prior to Christmas. And what we are now seeing at Acorn, Oric and Commodore is the result of getting it wrong at Christmas

To extrapolate from this that the home computer industry is finished is ridiculous

What about the companies that did get it right – Sinclair with its Spectrum models and Amstrad with the CPC464? They are quietly forgotten. Yet these are the companies who are now driving and controlling the market. The current price war has been deliberately precipitated by Sinclair and it puts pressure on its competitors at a time when some can least afford it.

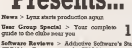
In Acorn's case outside influences have for the present taken control. Apple went through a similar trauma two years ago and came back strong and Acorn might, too.

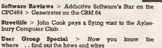
Commodore also has its problems, and it too seems to have taken refuge in a quick sell-off with its (so far) unsuccessful Plus/4 model.

But the micro game is far from played out yet and there are still rich rewards for the winners.

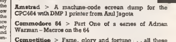
Presents...







Futures...



Extend your Basic commands on the Spectrum . . . Put your QL programs on tape . . . 1984 Popular Index

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Computer Trade Association Magazine of the Year

Crisis at Acorn

◄ continued from page 1

ny's present difficulties Lazards are believed to have favoured a sale of Acorn under which Curry and Hauser would lose control.

A year ago, Acorn was valued at £216m on the USM Stock Market – now it is worth £31m. Only 10% of the company's equity was placed on the USM; 85% of the remaining equity is still owned by managing director Curry and Hauser.

Forecasts of Acorn's financial performance for 1984-5 have been radically revised following the share suspension. Wood Mackenzie, the stockbrokers, had estimated profits of £8m. Now it is forecasting a £3m loss.

The company has sustained several recent financial setbacks. The company lost around £6m when it withdrew from the US market leaving only a small research facility in Palo Alto, California. A £3.5m advertising campaign over Christmas drew sales of around 200,000 machines – however, about 300,000 had been expected. Reducing the price of the Electron to £129 in competition with the Spectrum + at the same price (see *Popular Computing Weekly*, January 31) may lead to a further paper loss caused by writing down the value of existing unsold stocks.

Plus/4 slashed

◄ continued from page 1

Commodore's marketing manager, David Gerrard, denied that the Plus/4 would now take sales from the established 64 model. "The Commodore 64 is in a different market; it is noted for its communications, sound and graphics capabilities. Besides, it's an institution, and you can't get rid of institutions. The new Plus/4 price will, however, have a dramatic effect on Sinclair and Acorn."

The new price appears to apply to Europe only. In the US, where Plus/4 sales have been extremely poor, the price remains, at the moment at between $275 and $325.

One suggestion made for the bizarre new pricing of the Plus/4 has been that the machine is to be phased out in this country, and that Commodore is selling off its remaining stocks as quickly as possible.

David Gerrard categorically denies any such suggestion. "The Plus/4 will continue to be manufactured in Corby. We went into production of the Plus/4 at a very low level to start with – now we've changed our minds."

Two weeks ago Commodore cut staff levels at its Corby manufacturing plant by over 15%.

More discs for the QL

A SECOND disc drive system has been launched for the QL.

Medic Datasystems has begun sales of a Toshiba 5¼ inch double-sided double-density disc drive and interface for the machine. The device with a formatted capacity of 737K is supplied complete for £249.95. A dual disc version costs £399.95.

The company has also produced a range of memory expansion cards for the QL, 64K (£99.95), 128K (£129.95), 256K (£169.95) and 512K (£259.95). The latter can only be powered if the Medic disc unit is connected.

Details from Medic Datasystems, International Hs Cliddesden Basingstoke, Hants (0256 52703).

Lynx revived

◄ continued from page 1

Breyfield in Cambridge and Parc Electronics in Wales", said Dick Greenwood, who heads Anston, together with Alex Chapman. Dick was formerly chairman of Camputers. "We will also be introducing a 1M disc drive."

When the Lynx 128K is relaunched – between now and the end of May – it will cost £299, as against its previous price of £399. The 250K 5¼ inch single-sided, double-density master disc drive with controller, which was £344, will be relaunched at £249, and the 250K slave disc drive will be £149 (compared with a previous £229).

The new 1MB master drive plus controller will be launched at £269, and its slave counterpart will cost £169.

"We are still sorting out what we will be doing on the software side – the 128K Lynx is CP/M compatible," Dick continued.

Anston has decided not to restart production for the 48K and 96K models for the UK, although full support will be given to existing owners in terms of software and peripherals.

When Camputers went into liquidation, in May 1984, it had a new micro in development, which contained a built-in 3½ inch disc drive. "We are looking at the possibilities of the new micro, but it is not at the top of our list of priorities," Dick said.

The new Lynx products will initially be available by mail order from Anston Technology. Details from Anston Technology, Camside Works, 2 Fen Road, Chesterton, Cambridge.

Micro manufacturers besiege Moscow

THREE British computer manufacturers are looking to Russia as the next big micro market – competing for orders which could be worth £200m.

At Technobuch '85, a ten-day long micro exhibition in Moscow, Acorn, Sinclair and Memotech micros were exhibited. Each of the three manufacturers is hoping to pick up a substantial slice of the Soviet educational market – there are around 64 000 schools in Russia, and it is said the Russians plan eventually to have 20 micros in each school.

Sinclair, represented by Jan Tyszka, its European Business Development Manager, sold the dozen Spectrum machines on its stand to the Ministry of Higher Education. "Sinclair has no big firm order as yet, but Jan Tyszka will be going back to Russia soon for more negotiations," said a Sinclair spokeswoman. "We are optimistic about our chances of penetrating the Russian schools."

The company also had a number of ZX81s on show – which do not need any export licence, as the other micros do – and one QL, which Sinclair was allowed to exhibit, but not to sell.

Acorn was represented by 3SL, its Eastern European distributors. Technobuch '85 was the third exhibition at which 3SL has shown BBCs and Acorn won a £20,000 order from the Moscow Education Institute at the show. "This order is the result of a year's work by 3SL – these things take a long time to come through," said David Springle of 3SL. The BBC machine has been fitted with a Cyrillic character set for export to the USSR.

The third machine, the Memotech 512, also has a Cyrillic character set for the Soviet market. Its distributors, Spectrum Group which represented Memotech at Technobuch, was unable to sell any machines at the show, as it had not acquired the necessary export licences in time. However, Neil Johnson, who represented Spectrum Group, is enthusiastic about the Memotech's chances. "We have been invited back to Russia by the State Committee for Science and Technology in March to give an exclusive demonstration of the machine."

New Amstrad before summer

FURTHER to the article on Amstrad's new machines (*Popular Computing Weekly*, February 7), it now seems likely that the CPC664 is to be announced in April.

It also seems likely that the 664, like the 464, will be available with either a 'green screen' monitor and a colour version. It is the monochrome model that is expected to cost around the same as the colour monitor version of the 464. The colour 664 will probably be around £100 more.

Letters

Interesting points

We were pleased to see Andrew Pennell's review of the Enterprise 64 in your January 3rd issue – particularly as the machine had only been on sale for a few weeks

We found his appreciation of our graphics, sound and Basic most gratifying.

However, there are a couple of points arising from the review that your readers might find of interest

We decided to use edge fingers on the printed circuit board to connect to peripherals as this is proven to be the most reliable and cost effective method Although there are no polarising slots on the board, cables cannot be inserted wrongly as there are moulded 'pips' protruding from the connector housing The cables supplied with the review model were hand assembled and not representative of the production versions

When using the built-in word processor, text can be printed out in both 40 and 80 column format Text typed on to a 40 column screen, as is usual when using a domestic TV, can be saved, reformatted using the function keys, and printed in 80 column. A Paragraph Move facility is included.

We were sorry to see that Andrew disliked the Enterprise keyboard. Opinions vary – it's largely a matter of personal preference To date we've found users' comments encouraging, perhaps he will find that familiarity will improve his opinion.

The success of any home computer manufacturer is dependent upon the software available The Enterprise offers tremendous opportunities to programmers and software houses have been quick to realise this We are currently working with several major software houses to produce new programs and convert existing ones

This is in addition to the programs appearing under the Enterprise Programs label – four titles at present and 12 by the end of February, followed by a further 25 by March/April.

Steve Groves
Technical Support
Enterprise Computers
31-37 Hoxton Street
London N1

The computer cheats!

I have been playing Psion's *Chess* for some time now – and have until now found it an excellent tutor for the game.

However, I have just set up a game that I left and – to cut a long story short – the computer cheated!

As you can see, the pawn moves from E4 to E2 – clearly an illegal move, unless they've changed the rules

I would appreciate anyone's comments, as I was winning at the time

P Mellor
11 Lime Tree Avenue
Retford
Notts

Software distribution

I am writing in reply to the comments made by J Keene and J Tullin (January 3 and 30 issues, respectively) regarding software distribution.

Websters Software sources software from over 200 suppliers and receives for evaluation over 50 programs per week It is not our policy to require pre-release advertising and indeed we prefer the advertising to be co-ordinated with the presence of the stock in-stores We do not have a fixed number of releases per month but adjust our distribution to meet the demands of the market-place and would never attempt to dictate consumer demand.

The chart listings published in this magazine are compiled strictly from computer sales reports and reflect our sales to the trade in the previous seven-day period We also poll chart return stores to determine top-ten selling lines across the counter each week and use this information to guide our stock-reordering

It takes Websters Software no longer than 48 hours to distribute new titles nationwide and I would suggest that J Tullin's perception of two months lead time is created by the pre-release advertising which Websters does not endorse

An orderly market of free competition provides the greatest opportunities for new and innovative software publishing and it will always be our position to contribute to that market rather than, in any way, attempt to control it.

Martin Corral
Websters Software
Curzon House
Middleton Estate
Guildford
Surrey

Equally reliable

On January 28 Acorn's managing director, in a letter of "comfort" to the press, states

"The BBC Micro and Electron are the most reliable by far of all the popular micros available A recent survey by Business Decisions revealed that only 3% of Acorn's micros are returned faulty in the first six months, compared with 23% of Sinclair Spectrums, 18% of Commodore Vic 20s and 13% of Commodore 64s."

In view of the report carried by the relatively independent *Personal Computer News* magazine concerning this same survey we would observe that the Acorn statement again fails to acknowledge that Amstrad computers are equally reliable – yet Amstrad computers comprise a computer system, monitor and cassette recorder

William Poel
Amsoft
Brentwood House
169 Kings Road
Brentwood
Essex

Sinclair too has taken exception to the survey carried out on behalf of the relatively independent firm Aspect, Acorn's advertising agency.

Release date

Having been tempted by the news of Commodore's fast 1548 disc drive for the C64, frustration is now setting in as I wait for its arrival.

There seems little point in buying the existing 1541 model as C64 cassette programs with fast loaders now load just as fast Can you please throw some light on the 1542's possible release date?

N Card
9 New Hayes Road
Tunstall
Stoke-on-Trent
Staffs

Bad news, I'm afraid. The 1542 has been shelved indefinitely by Commodore which plans instead a new 1571 disc unit which is scheduled to arrive in the Summer. It will, however be both considerably faster and pricier than the 1541. It features a built-in 6502 processor, 2K Ram, 32K Rom and a 360K (formatted) capacity.


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Ram Electronics (Fleet) Ltd (Dept PCW), 106 Fleet Road, Fleet, Hampshire GU13 8PA.

RAM

Trade and export enquiries welcome

User Groups

Joining a computer club can be an excellent way of getting to meet other micro enthusiasts and finding out more about your machine. Last week the entire workforce of Popular devoted their lives to ringing every number, checking every address, climbing every mountain and leaving no stone unturned in the creation of an up-to-date user group list.

We may never do it again so grab it while you can.

North

Preston *Preston BBC Micro User Group* Contact Duncan Coulter 8 Briar Grove, Ingol Preston Tel 0772 725793

Huddersfield *Huddersfield BBC Micro User Group* Contact Howard Walbers 2 Barrett Clough Head, Slaithwaite, Huddersfield

Maltby *Maltby TI User Group* Times: 2nd Tuesday of each month, Contact Mark Lee, 89 Rotherham Rd, Maltby W Yorkshire.

Washington *Washington Sinclair Users Group* Venue Columbia Association, Columbia Community Centre, Tyne & Wear

Stockport *Kinder Peek Computer Club* Venue New Mills School, Church Lane, New Mills Machines covered Any Contact G M Flanagan 11 Sundown Close New Mills Stockport Cheshire Tel 0663 44061

Tyneside *Computertown NorthEast* Venue Science & Engineering Museum, Blandford House Blandford St Newcastle-on-Tyne. Times every Saturday 10am-4pm Membership 100 Machines covered. Any

Liverpool *Merseyside Co-operative User Group* Venue Christopher St, Liverpool Times every Tuesday at 7pm. Membership 20 Machines covered Any Contact Keith Driscall 53 Melville Rd Bootle, Merseyside

Blackburn *Blackburn Computer Club* Venue Fernhurst Hotel, Bolton Rd Blackburn Times Fortnightly on Mondays Machines covered Any Contact John Schofield 1 Sutton St, Feniscowles Blackburn Tel 0254 36127

Cumbria *West Cumbria User Group* Contact P Majid – 0946 62732

Skelmersdale *Skelmersdale User Group* Venue 49 Heversham Birchgreen (Community Centre) Skelmersdale Times Fortnightly on Thursdays Membership 30 Machines covered Any Contact Mr P Rogers, 6 Lowcroft Ashurst Skelmersdale

Little Sutton *Ellesmere Port Computer Club* Venue St Paul's Church, Rooton. Times Fortnightly Membership 60 Machines covered Any Contact Mr Corcoran – 051 327 3912

South Yorkshire *South Yorkshire Personal Computer Club* Times 2nd & 4th Wednesday of the month. Contact Eric Cox – 0742 550588

Tamworth *Tame Computer Club* Venue Tamworth Activity Centre Times 1st & 3rd Fridays of the month Contact: Tony Beckett, 67 Maitland, Glascote Heath, Tamworth, Staffordshire Tel 0827 83473.

Hull *Forum 20 Users Group* Venue. On-line database with associated Users Group Contact Neil Barnby 130 Fifth Avenue, Northall Estate Hull Tel Hull 582 121

Cumbria *Furness Computer Club* Times Every other Wednesday Membership 20 Machines covered. Any Contact: Richard Wade 67 Sands Road Ulverston, Cumbria.

Manchester *Manchester Sinclair Users Group.* Venue Longsight Library, Stockport Road Manchester Times Every Wednesday at 7 30 Membership 30 Machines covered All Sinclair Contact Mr Krampf 14 Mellar Rd, Longsight, Manchester Tel. 061 2258997

Manchester *Acorn User Group (North)* Contact John Ashurst, 20 Verdure Close Failsworth Tel 061 681 4962

Midlands

Stratford *Stratford Computer Club* Venue Wesley Hall, Old Town Stratford-on-Avon. Times. 2nd Wednesday of every month at 7pm Membership 120 Machines covered Any (mostly BBC s and Spectrums) Contact: Chris Parry. 15 Kippling Road, Stratford

Bedfordshire *Bedford Computer Club* Venue Star Social Club, Batts Ford, Bedford Times 1st and 3rd Monday of each month at 7 30pm. Membership 45 Machines covered Any Contact W Thompson 2 Sandon Close Sandy, Bedfordshire Tel. Sandy 82365

Birmingham *Acocks Green Computer Club* Venue St Mary's Church Acocks Green. Times 2nd & 4th Thursday of each month Machines covered Any Contact Mike Bedford White, 16 Westfield Rd, Acocks Green, Birmingham B27 7TL Tel. 021 707 3100

Solihull *Croft Computer Group* Contact. Susan Jay, 17 Colebrook Croft Shirley, Solihull, W Midlands Tel 021 744 3653

Wolverhampton *West Midlands Sinclair User Group* Venue Dunsdale School Wombourne, Wolverhampton Machines covered Sinclair/CBM64 Contact Graham Walden, 20 Planes Lane Wombourne Wolverhampton Tel 0902 894744

Birmingham *Birmingham Atari User Group* Venue Matador Public House Bull Ring, Birmingham Times Every Thursday at 7 30pm. Machines covered Atari. Contact C S Boswell. Tel 021 359 4348

Coventry *Coventry Computing Circle* Contact Chris Baughan 9 Hillan House, Southford Wey Coventry Tel 0203 38802

West Midlands *380Z Midlands User Group* Times Twice per school term Membership 20 Machines covered Research Machines Contact Spencer Instone, 59 Avenue Road, Leamington Spa W Midlands Tel: 0926 38781

Walsall *Walsall Computer Club.* Venue Parkhall Community Centre Times 2nd & 4th Mondays of the month Machines covered. Any Contact Alison Hunt, 86 Princes Avenue, Walsall, W Midlands Tel 0922 23875

Birmingham *Birmingham ACC* Venue Free Church Hall, Land Lane, Marston Green, Birmingham. Times 1st & 3rd Thursdays of each month. Machines covered Mainly CBM and BBC Contact B Edwards Tel 021 707 1438

West Midlands *West Midlands ACC* Venue Elmfield School Love Lane Stourbridge W Midlands Times 2nd & 4th Tuesdays of each month Machines covered Any Contact John Tracey, 100 Booth Close Brierley Hill, Kingswinford, W Midlands Tel. 0384 70097

Nuneaton *Nuneaton Computer Club* Contact: T Schweiger, 3 Greenside Close Whilestone, Nuneaton.

Rugby *Rivel Computer Club* Contact Chris Haine 4 Cord Lane, Easenhall, Rugby

Heanor *Heanor & District Computer Club* Venue Heanor Community Centre, Hands Rd, Heanor, Derbyshire Times Every other Wednesday at 7 30 Contact J Wright 10 Thorpes Rd, Heanor Tel Langley Mill 763399

Nottinghamshire *Nottingham Micro-Computer Club* Venue Castle Gate Congregational Centre, Castle Gate, Nottingham. Times Weekly on Mondays. Contact Steve Goldingray St John's College, Brancote Village Beeston Nottingham. Tel 0602 224046

Peterborough *Commodore Users Group* Venue Bretton Woods School, Peterborough. Times Fortnightly on Wednesdays at 6 30pm Machines covered. Any Commodore. Contact Mrs D Bradley, 24 Coniston Rd Gunthorpe Peterborough. Tel. Peterborough 74306

Corby *Universal Micro Club* Venue Lodge Park Sports Centre Corby Times Fortnightly on Thursdays at 8pm Contact: A Ross 6 Alness Close, Kettering Tel Kettering 516708

Northants *Towcester Micro Users Group.* Contact S J Clark 83 Watling St Towcester

South and West

Ashford *Duncan Bowen Computer Club* Venue Duncan Bowen Youth Wing Kingsnorth Rd, Ashford. Times Thursdays 3 30-5 30 Machines covered. Sinclair BBC Contact J Fanning, Ashford 0233 26804

Bordon *Bordon District Computer and Electronics Club* Venue. Community House 110 Hollybrook Park Rd, Bordon Hants Machines covered: Spectrum, Commodore Contact Nicola Watt 04203 4093

Alton *Alton Computer and Electronic Society* Venue Alton Community Centre, Amery Hill, Alton Hants. Machines covered *BBC*, Commodore, Spectrum. Contact: Kevin Weatherhead 0430 87479

Cowplain (Portsmouth) *Wecock Computer Club* Venue Wecock Village Centre, Eagle Avenue, Cowplain, Portsmouth Hants Times Tuesdays Membership 20 Machines covered All home computers Contact Wecock Village Centre 0705 258833

Dunstable *Chiltern Home Computer Club* Venue Five Bells Pub, Dunstable Library Times 1st and 3rd Mons (in the pub) 4th Mon (in the library) per month Machines covered. All types. Contact Stephen Betts, 42 Wallace Dr, Eaton Bray Beds 0525 220932

Directory

Eastbourne *Eastbourne and District Computer Club* Venue St Aidan's Church Hall, Witley Rd, Eastbourne. Times. 4th Wed per month. Membership 43. Machines covered. Most home computers, Apple. Contact: Jim Booth, 13 Wish Hill, Willingdon, Eastbourne

Enfield, Edmonton *Millfield Computer Group* Venue Millfield House Arts Centre, Silver Street, Edmonton, London N18 Times 2nd Tues, 4th Thurs per month. Machines. All micros Contact: Tony Gibbs Farover, Barnet Rd, Arkley Herts 01-449 5618

Flitwick *Flitwick Club* Contact. J Rodger, 3 Longleat Close, Flitwick 0525 712011

Gloucester *Gloucester Mid-weekly Spectrum User Group* Venue 3 Linnet Close, Gloucester Times weekly. Contact: Barry Ledbury 0452 53186

Guernsey *Guernsey Micro Artists Club* Membership 10 Interests computer graphics Contact Tony Thorne 0484 449855

Hampshire *Fareham and Portsmouth ACC* Contact. The Warden, Portchester Community Centre, Portchester Hants

Lea Valley *Lea Valley Atari Users Group.* Venue Broxbourne, Times Fortnightly Contact. M Tydeman, 126, Cadmore Lane, Cheshunt, Herts

Nailsea *Byte Home Computer Club* Venue: Youth House, High Street, Nailsea. Times: Fridays 7-10pm. Membership 50 Machines covered: Contact. Mick Ellick, 3 Burrington Close, Nailsea, Bristol. 0272 854156

Orpington *Amstrad User Group* Contact R A Pyatt, 23 Arundel Dr. Orpington, Kent Orpington 20281

Oxford *Oxford Personal Computer Club* Venue. Donnington Community Centre Times: 1st and 3rd Weds per month Membership 80 Contact Sebastian Linfoot, Flat 10, Pembroke Court, Rectory Rd, Oxford.

Portsmouth *Portsmouth Co-op Club* Contact A May, 27 Victoria Rd North, Southsea, Hants 0705 820339

Romsey and Southampton *Romsey Area Dragon Computer User Group* Venue various Times 2-6pm Sats or Suns Contact. Ashley Adamson, St Elmo. Slab Lane, West Wellon, Romsey Hants 0794 23041

St Albans *St Albans Sinclair User Club* Membership 15 Contact: Adam Slater, 40 Waterford Rd, St Albans, Herts 0727 54176

Sheerness *Sheppey CC* Venue Seaview Hotel, The Broadway, Sheerness, Kent. Times Saturdays, 2pm. Machines covered: Spectrum & QL. Contact Stevyn London, 133a Alexandra Rd Sheerness Sheerness 664009

SE London *QLSEL.* Venue South East London College Student Union Machines covered: QL Contact. Reza Shahidi 01-469 0691

Southampton *Southampton ACC* Contact: Paul Blitz, 84 Chigwell Solent Close Chandlers Ford, Eastleigh, Hants 04215 68080

West Herts *West Herts C UG.* Venue St Steven's Parish Centre, Bricket Wood. Times: Every other Tuesday from 12th, 8pm. Machines covered. Tandy, BBC, Spectrum, Amstrad. Contact. J Byfield Moonrakers, The Rutts, Bushey Heath, Herts 01-950 1081

Windsor *Nascom Thames Valley UG* Venue. Frogmore Hotel, Alma Rd, Windsor Times: Every other Thursday, 8pm.

Worle *Worle CC* Venue The Manor Inn, Worle, Avon. Times. Every other Monday, 7 30pm Contact: Humphrey Bennett, 30 Bramble Wood Rd Worle, Avon

Chelmsford *Namebug* Venue Witham Library High St Witham, Essex. Machines. BBC Electron. Contact Dave Watts, 30 Peel Rd, Chelmsford, Essex Chelmsford 358127

West Sussex *Midhurst & District CC* Venue The Grange Club, Bepton Rd Midhurst, W Sussex. Times. 2nd and last Thursday each month. Contact: Val Weston, 64 Petersfield Rd, Midhurst, W Sussex.

East

Colchester *Colchester Sinclair User Group* Venue Straight Road Centre, Colchester Times alternate Tues Contact. Richard Lown. 0206 841088

Colchester *Colchester Computing Society* Venue Severalls Social Club Mill Lane, Colchester Times: 1st and 3rd Weds per month. Contact: A H Potter, 14 Foxmead, Rivenhall, Witham, Essex.

Rochford *S E Essex Computing Society* Venue Rocheway Centre, Rocheway, Rochford Times. Mondays. Membership 40-60. Machines covered: All. Contact. David Knight. 0702 218456

Witham *Namebug* Venue Witham Library, High St Witham, Essex. Times 2nd Thurs and 3rd Weds per month. Membership 30 Machines. BBC, Electron Contact: Dave Watts, 30 Peel Rd, Chelmsford Essex 0245 358127

Scotland

Aberdeen *Kingsway Amateur Computer Club.* Venue Kingsway Technical College, Old Glamis Road, Dundee. Times Saturday 8.30-6pm. Membership 38. Machines covered: Spectrum, Dragon, BBC Contact: J Cooke Tel: 0382 819021.

Aberdeen *Grampian Amateur Computer Club* Venue 36 Thistle Lane, Aberdeen. Times Every Monday Membership 80-100 Machines covered. All types. Contact Mike Elrick. Tel 0224 741387

Perth *Perth & District Amateur Computer Society* Venue Riverside Lounge, Bridge End, Perth. Times Third Tuesday in month. Membership 80 Machines covered All types Contact John Sanderson, 4 Maypol Place Perth. Tel. 0738 33961

Edinburgh *Edinburgh Home Computer Club* Venue Crosswinds Community Centre, Tollcross Edinburgh. Times 2nd, 3rd, 4th Tuesday each month. Contact. Ian Robertson. Tel 031 441 3581

Carluke *Amsclub* Venue 48 Moant Stewart Street, Carluke, Lanarkshire Machines covered. Amstrad Contact. David Baxter

Wales

Swansea *Swansea Computer Club* Membership 80 Machines covered All home computers Contact B J Candy 0792 803811

Cardiff *Cardiff Sinclair and Amstrad User Group* Venue Central Hotel (Sundays) Corporation Hotel (Weds) Times: middle Wednesday and last Sunday per month. Membership 130 Machines covered All Sinclair and Amstrad. Contact: Steve Smith 0222 893237 or Mike Hayes 0222 371732

Cardiff *Cardiff BBC User Club* Venue University College, Cardiff. Times alternate Weds Membership 80 Machines covered. BBC, also IBM, Sanyo. Contact: Geoff Barker, University College, Cardiff

Dyfed *ICPUG (Dyfed)* Machines serious home. Contact. F J Townsend. 0554 821065

National

Independent QL User's Group Newsletter Contact. Brian Pain, 84 Oxford Street, Stony Stratford, Milton Keynes Tel. 0908 564271

Derenic Adventures. Machines. Commodore 64 Contact. Derenic Adventures Tel. 0868 373212.

Club 64 Newsletter on disc Machines. 64 Contact. Brendan Conroy, 36 Upper Drumcondra Road, Dublin 9, Ireland

Dutch QL Group Machines QL Contact: Ron den Breems, Kroonstraddreef/27, 3067 RT Rotterdam, The Netherlands

National TRS-80 and Video Genie User's Group Newsletter Contact Brian Pain, 84 Oxford Street, Stony Stratford, Milton Keynes MK11 1JU Tel. 0908 564271

Format 40/80 BBC Disc User Group Quarterly Newsletter on disc Contact. Peter Hughes. Tel 0272 892082

Dragon Games Users Group (being formed) Bi-monthly newsletter Machines: Dragon 32/64 Contact M A Blease, 64 Prince Street, Rochdale, Lancs. Tel. 0706 31239

Your Atari. Bi-monthly newsletter Machines: Atari micros and VCS Contact: Gerald Forrester Tel. 03552 49486.

UK Atari Computer Owners Club Quarterly Magazine. Contact Ron Levy, PO Box 3, Hayleigh, Essex

Sinclair Amateur Radio Users Group. Newsletter Machines Mainly ZX81 and Spectrum. Contact: Paul Newman, G4INP, 3 Red House Lane Leiston Suffolk IP16 4JZ.

UK Intel MDS Users Club Newsletter Machines. All aspects of Intel semiconductor products Contact: Lewis Hard, c/o Space Ltd, The Old Coach House, Court Row, Upton-on-Severn, Worcs Tel: 06846 38751

International Sharp User Group Contact: Graham Knight, 108 Rosemount Place, Aberdeen, Scotland. Tel. 0224 83 0626

Laserbug Newsletter Machines BBC/Electron/Atom. Contact: Paul Barbour, 10 Dawley Ride, Colnbrook Slough. Tel. 02812 3084

Tangerine Users Group Newsletter Contact Bob Green, 1 Marlborough Drive, Worle, Avon. Tel 0434 21316

British TI Users Club Machines Contact. Philip Rowley, 2 Woodside Crescent Clayton, Newcastle-under-Lyme

Beebug Machines: BBC/Atom/Electron. Newsletter Contact David Graham, PO Box 50, St Albans, Herts AL1 2AR

Comex 35 User Group Contact: David Hitchins, 1 Fyfe Crescent, Baildon, Shipley Tel 0274 580519

Landscape

Program *Penetrator* **Micro** Commodore 64 **Price** £7.95 **Supplier** Melbourne House, Castle Yard House, Castle Yard, Richmond, Surrey

Ever had the sudden urge to save mankind? Well, here's your chance with *Penetrator*. *Penetrator* is another game in the *Scramble* family, but it has one unique feature which gives it the edge over the other versions of the old favourite. A screen editor is available which allows you to redesign the landscape, and add missiles and radar bases wherever you like.

First things first. Your job is to fly through four defensive rings, then blow up a neutron bomb cache hidden in the underground caverns. You have to be careful, though, because if you don't hit the bomb on the first pass – then it's back to the start. Radar bases track your movements and missiles make the going tough.

The graphics are good. Because only four or five colours are used at once, the action is clear, and it doesn't give you eye-ache after playing for an hour. I liked the music even better, though. Also included is a training mode which allows you to practise on the separate stages with an endless amonot of lives (good idea, this).

Although easier than the original Spectrum version, *Penetrator* on the 64 is very playable – even my Dad liked it. The editing facility is good, if somewhat tricky to use. I can thoroughly recommend this one – have fun!

Tom Hussey

Thunderbolts

Program *Black Knight* **Micro** Commodore 64 **Price** £7.95 **Supplier** Interdisk, 249-251 Kensal Road, London W10 5DB

Black Knight is something a bit different in the way of normal platform games. For a start it isn't necessary to dodge mutant telephones and flying fish when scurrying up platforms. In this much more down-to-earth game, you have to leap into the saddle and ride your horse to the goblin's castle where he has been guarding a treasure chest for 200 years.

There are several stages in the Black Knight's quest for gold and glory. First, he has to gallop across the countryside jumping over crevasses and dodging thunderbolts and fireballs. The close-up animation of the Black Knight riding through the countryside is some of the best animated graphic work I have ever seen. After finishing his trip across the lowlands, our hero has to leave his four-legged friend and do a bit of jumping himself. Then he comes up against a giant serpent, and has only his trusty blade to defend himself. The graphic effects are magnificent as you jump towards the snake and (theoretically) chop its head off.

Once inside the castle, our adventurer has to avoid traps in his search for the little green goblin and the treasure.

Black Knight is extremely playable, but can be quite tricky in places. This game has got what many others lack – originality. So if I were you, I'd polish the sword, fish out the cash and run out and buy this one.

Tom Hussey

Overheads

Program *Software Star* **Micro** CPC 464 **Price** £7.95 **Supplier** Addictive Games, 7a Richmond Hill, Bournemouth BH2 6HE

This is not the first software house simulation to be released but it carries the Kevin Toms hallmarks of attention to detail and carefully tuned difficulty that made *Football Manager* such a hit. The set task is not easy – not only must you meet a substantial target profit in order to avoid getting sacked but also you must aim to achieve the status of 'software star' by having your releases consistently in the top of the charts.

Success is earned by a careful juggling of such things as the amount of hype or honesty you put forward to boost your image, pages of advertising you order each month, the number of games released, whether it is the Christmas boom or the summer slump, and the amount of time invested in the game. Long development time means higher overheads and fewer games that you can churn out but this is balanced against the increased likelihood of getting favourable reviews which can greatly influence sales figures (modest cough).

You are constrained by the fact that your existing games all have a finite lifespan after which sales fall off, unless you release a new product. This strikes me as something Kevin Toms should know nothing about, being at complete odds with his experience with *Football Manager*.

What makes this game a winner is the mastery of the art of suspense that also characterised *FM* – where lesser simulations would have instantly shown you the positions of the monthly software chart, here you are made to wait and sweat whilst your games slowly inch their way up. Unfortunately there are no on-screen highlights of what your personal mega-game looks like but it's still very ... Addictive.

Tony Kendle

Double-entry

Program *+80 Finance Manager* **Micro** Spectrum 48K **Price** £16.95 **Supplier** Oxford Computer Publishing, 4 High Street, Chalfont St Peter, Bucks

How clever of *Popular* to realise that I'd need some way of managing the vast fortune I have!

They've provided me with a financial application which enables me to keep fully double-entry records of income and out-goings, log all my standing orders and obtain professional quality hard copy via an 80-column printer and interface.

The program itself is both versatile and reasonably friendly once its commands have been mastered. Choices are made by menu, but as there are so many of these it's as well to read the documentation first: this is well provided with examples, but could be clearer in parts.

All this is only available at a price though: the version for use with the 32-column ZX and Alphacom 32 printers costs less than half as much. I doubt the average household has need of computerised double-entry accounting, but a small business person with only a Spectrum will probably be well pleased with it.

John Minson

Major battles

Program *Empire of Karn* **Micro** Commodore 64 **Price** £7.00 **Supplier** Interceptor Micros, Lindon House, The Green, Tadley, Hants

Empire of Karn follows on from the *Heroes of Karn* as the second adventure in the *Karn* trilogy

Like its predecessor, it is a graphical adventure in broadly the same sort of style as *The Hobbit* – the description of the location is accompanied by a picture of the place. Music is also used to help enhance the atmosphere.

As with all these fantasy adventures, the program is accompanied by a detailed storyline full of evil doings, weird place names and major battles.

Your continuing quest is to save the Empire from the evil Zheff. Accompanied by Darm, you have to set out on a journey across the distant regions of Karn.

The computer is instructed on what you wish to do by using short English commands (eg *Take bottle of rum*). As with most adventures, you can save your position in the game for a later date. Although the graphics couldn't really be said to be outstanding, they do add an extra dimension.

Empire of Karn is fairly cheap, and is a reasonable buy if you are into adventures.

Tony Hussey

You're in the cellar of the Hall.Stone
steps lead up to the Hall above.
There is an archway in the north wall.

A gamble

Program *Classic Racing* **Micro** CPC 464 **Price** £8.95 **Supplier** Amsoft, Brentwood House, 169 Kings Road, Brentwood, Essex CM14 4EF

Cast in the venerable tradition of *Football Manager* this is an entrepreneurial sporting simulation that is well worth a look if you enjoy that sort of thing. The basic idea is that you are the manager of a stable of 18 horses, playing against five other stables, all of which can be the computer if you have no friends, although it is much more enjoyable as a family game.

You start the season in the highly unlikely situation of knowing nothing about the qualities of your horses and you must sort out their strengths and weaknesses in time to win a packet at the four classic end-of-season races. Accompanying this is a sort of sub-plot where you hope to boost your winnings by gambling.

The highlights are the well programmed races together with appropriate sound and if you are feeling suitably ebullient it is good fun, frustrating and addictive. But ultimately you begin to realise that this game is a bit long winded, each season takes many hours to play, most of which time you are doing nothing. For instance, although it is enjoyable to watch the horses dawdle up to the starting line once or twice, in the long run it becomes tedious.

This problem aggravates the game's one major flaw – and it's a doozy. You can only save the game status after each race meet, which can take the best part of an hour. If you have to switch off unexpectedly then that's tough. Conversely, if you try to save the game when prompted, 'just in case', imagine the shock-horror when, having done so, it hangs up with a 'thanks for playing' message, necessitating a re-load.

Tony Handle

Ingenious

Program *Curse of the Seven Faces* **Micro** Spectrum 48K **Price** £2.95 **Supplier** Imperial Software, Imperial House, 153 Churchill Road, Poole, Dorset.

When so many adventures are produced with Gilsoft's *Quill*, and many of them are of a high standard, it's easy to forget that there's still room for other methods.

Imperial Software have a useful innovation in this text only quest. Type in '*Save' and you can not only save to tape for permanent storage, but also into a buffer allowing you to take potentially fatal decisions without having to mess around with a cassette recorder.

The adventure itself is good too. You have to defeat an evil wizard, but first you must locate the staff, spell book, hat and cloak of a dead mage. The search takes place in a multiplicity of atmospherically described locations, which really stimulate the imagination.

The puzzles are clever but not unsolvable and there's an ingenious maze, but most interesting is the use of 'teleportation' between regions of the land, instead of constant direction commands. As some of these 'gates' are one way you have to be careful that you've done everything before using them.

The vocabulary seems fairly broad, though perhaps a little specific in a couple of places, but the scrolling display looks old-fashioned. *Curse* is vast and enjoyable, but, sadly, expensive. Reduce its price by a pound or two and it would rate higher.

John Minson

Addictive

Program *Thrusta* **Micro** Commodore 64 **Price** £2.99 **Supplier** Software Projects, Bearbrand Complex, Allerton Road, Woolton, Liverpool

There is a huge quantity of Commodore 64 games material on the market at the moment.

Although *Thrusta* isn't very complicated, it is a neat, addictive little package.

Your mission is set on the planet Spectra where aliens are rapidly taking over. They hatch from eggs and then emerge to create havoc. It is your job to nudge a boulder on top of them as they hover dangerously below.

The screen display is a bit difficult to describe. Roughly, it consists of a series of platforms at different levels, with the eggs at the bottom. Although the graphics aren't amazing, they are quite adequate. Worth noting also is the fact that *Thrusta* doesn't have an irritating tune burbling away.

Not a top ten contender, but a good price and well worth a look.

Tom Hussey

HI-SCORE





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PC19

Clubbing together

***John Cook** goes to Aylesbury and becomes an honorary member of the local computer club*

I had always believed that messing about with computers was something of a solitary occupation. There is *The Programmer*, a lone figure hunched over a monitor, fingers running over the keyboard, eyes closed in mystic union with the CPU, and *The Games Player*, wide-eyed and manic, hand on joystick, mind somewhere near Alpha Centuri. So the thought of a number of such people getting together in association to form a *club* of all things (or User Group to the cognescenti) seemed most strange – or at least it did before my recent visit to the Aylesbury Computer Club.

One Friday I joined one of its regular weekly meetings at the Grange Centre in Aylesbury. "It's a school during the day but doubles as a venue for evening classes and interest groups at night," explained newly elected chairman Jonathan Roberts. The school-like environment and furniture does not seem to dampen the obvious enthusiasm of its members. As I entered the room, I was greeted with the familiar computer synthesised cry of, "Ghostbusters!" A quick glance round the assembled company (in total about 30) suggested the existence of two sub groups.

Zap fiends seemed to be all under the age of 16 and programmers above. And never the twain shall meet? I was later to find out.

The other officers of the club are Jonathan Hill (Treasurer) and John Turner (Secretary), who is the only 'professional' programmer amongst them. "I remember back in 1970 when we had a new computer at work with 64K of core memory," he told me. Things have come a long way in 15 years.

I asked about the club's history and was referred to Keith Pyott, who only recently retired from the post of Chairperson. "It started in October '81," he explained, "when a group of friends (mostly ZX 80 and 81 users) put a notice in the local library." So ... it can be that easy. At present, the club has about 50 paid up members. I asked Jonathan Hill about the costs of running the club. Did they get any help from the local council? Surprisingly, no. "We're self-supporting," he said. "Weekly subs of 20p just about pay for the hire of the room, so we are free to use most of the money from the membership fee (£7.50 a year for adults over 17, £5.00 for juniors) to buy books and programs for the club library." Indeed, the club has an impressive array of utilities, games and books which any member may use – one of the more obvious advantages of User Group membership. Others include organised courses on such traditionally tricky subjects as machine code, and the occasional visiting speaker.

However, the club has changed over the years. Jonathan Hill again, "Things were different when we all had ZX 81's ... it was more hobby-ist. There was a lack of software, so you had to write your own, and the limitations of the hardware made it a challenge. In a way, modern software kills off your own efforts because it is so good."

I asked him what he thought of the games-playing half of the group. He smiled. "I think games can be the motivation for interest in programming itself," he commented. One look at *Arcade Avenue* with its profusion of *Pokes* for every game conceivable confirms this, although at least one member of the club titled 'Joystick Jim' (the club's arcade fanatic and self-appointed *Invasion of the Bodysnatchers* groupie) would seem to be quite happy blasting everything in sight.

The micros in use that night were three Spectrums, two Commodore 64's and a QL, although BBCs often make an appearance, together with the occasional Apricot. The most common machine progression in the club seemed to be from ZX81 to Spectrum to QL.

Sir Clive has a lot to answer for one way and another. The arrival of the QL has caused much discussion within the club, as I found out chatting to Derek Longe, the club graphics expert. He nodded at the group around Jonathan Roberts' own machine, "They may be able to run a clock at the same time as another program, but I haven't seen them do anything useful with it yet." Derek himself does plenty of 'useful' things with his Spectrum; for a start, he was able to make enough money from writing an astrology program to buy a colour TV for his own use. His expertise in computer graphics is used to design such things as covers for the club newsletter (published monthly) and to help anyone that wants to know anything about Spectrum graphics, in the shape of his 'Graphics Corner' every week.

Meanwhile, back at the QL, Keith was recounting his problem with 'the missing Rom,' as reported by David Nowotnik – himself a founder member of the club – in *Popular Computing Weekly* Vol 3 No 50. As the intrigued QL owners pondered this conundrum and Keith was explaining how the Spectrum and QL reserved memory differently for arrays, something occured to me – this is really what user groups are really all about. A sharing of expertise and experience.

Any one person, in general, can only do so much sitting alone at a keyboard. Eventually, you are going to hit a problem you can't solve, or meet something you just don't understand. On your own, you could be banging your head against the same brick wall indefinitely ... but if you bring the puzzle to a group of people, at the very least you'll be offered a new variety of wall to attack. At best, the problem will have been encountered before, and you will have save yourself considerable amount of brain strain. This is common in games playing, but also applies to programming.

However, club meetings don't simply consist of people picking each others brains. As John Baynton-Glen told me, "I'm pretty busy at the moment, so I haven't got that much spare time for programming. I just come here to look around and chat to old friends." At present John is concentrating on his Formula Ford 1600 racing aspirations, and is finding it hard going. "There's a lot of paperwork involved in trying to get sponsorship," he says, (amongst other things he is currently sounding out several software houses). "I'm thinking of getting a BBC set-up to sort it all out."

At the moment, the computer trade is somewhat depressed – perhaps rightly so, with companies going under every week. I say take heart. The existence of such groups as the computer club at Aylesbury, the many others throughout the country (two others in the Aylesbury area alone) and the enthusiasm with which they are attended and run should give great cause for optimism – these clubs do much to indirectly support the industry, so why isn't the industry supporting them?

For the lone user, at less than the price of a good game, you can join a group, expand your computer horizons and make some new friends into the bargain.

For details of the Aylesbury Computer Club, contact John Turner at 6 Cambourne Avenue, Aylesbury.

The Popular guide – the whys and hows explained

User Group — try saying it slowly. User Group. Sounds vaguely seedy, doesn't it? But don't let that put you off joining or indeed forming one, because the experience is likely to be very rewarding indeed.

But first of all, perhaps we ought to ask the 52 Megabyte question – what is a User Group?

User Group is simply jargonese for a computer club. Associations of people with a mutual interest in computing, whatever aspect or form that may take. In fact, there are two sub-groups – Face to face or Postal – within this area of computing activity, which you should consider.

Postal Groups are usually organised on a national or international basis, with contact usually being via a news letter or in some cases disc.

For you the potential member, they have the advantage of being able to contact users not immediately in your area or abroad. The disadvantage is that these organisations lack the spontaneity of face-to-face clubs — also, you may have to send a subscription to a far off and unknown place to join. Best to check them out with an enquiring letter first.

The main advantage of face-to-face clubs is that you get to meet real live people, just as keen about computers as you. They'll talk to you, help you out, and maybe even let you have hands-on experience of their own machine. Which brings us to — why join a User Group?

It's two o'clock in the morning. You are hunched over the keyboard, haggard and drawn. You are stuck. A programming bug? An impossible screen? Who do you turn to? By joining a computer group the chances are that you will find someone with a similar problem. At least you'll have a second opinion.

You'll also be able to take advantage of the other facilities the group may offer. Most run occasional courses on various aspects of programming, and have visiting speakers from time to time.

But what if there isn't a club near you?

Forming your own Group

First of all, stop and ask yourself if you are really prepared to spend several hours of hard, and often thankless, work in the routine running of your new organisation? If the answer is yes, give yourself a pat on the back and read on.

Postal Groups are easier to set up than Face-to-face Groups. The main problem, that of arranging a venue, does not exist — although you will need access to duplication facilities. Putting advertisements in free sections of the computer press, such as *Computerswap* in this magazine, is a good idea — or the manufacturer of your particular type of computer might help by providing you with a mailing list.

Face-to-face Groups are harder to set up. First test out the water by placing advertisements in the computer and/or local press, local computer shops and the local library. You'll soon know if you have a viable proposition — but if only a few people respond, don't be disheartened. Small groups have the advantage of being able to meet in members' houses.

A larger response may bring you extra help in your efforts, but needs further action. Here your local council, education department and library can help you with your next obstacle — the club venue.

The council/education department will often hire out rooms at a cheap rate to clubs of an 'educational' nature — into which yours should fall. With enough signatures, they may well provide some form of financial help. At the library, there will be a list of local clubs — even though a computer club may not exist, other club officials will usually be helpful in giving advice on general organisation.

Good luck, and don't forget to be included in our 1986 User Guide!

Short comings

Hardware *Entrepo Quick Data Drive* **Micro** Commodore 64/Vic 20 **Price** £80 **Supplier** Spectrum Group Dealer Chain.

The Entrepo Quick Data Drive is a high speed tape cartridge system designed to replace the Commodore C2N cassette used by the Vic 20 and C64 machines

It offers the same facilities, plus a few house-keeping ones of its own, but with the time taken to save or load files reduced to something like a tenth of time taken by the notoriously slow C2N

In price and performance, tape cartridge systems fall between cassette recorders and disc drives. The Sinclair Microdrive and the Rotronics Wafadrive have shown what can be achieved at relatively low cost for the Spectrum microcomputer, both offering considerable increases in speed, etc

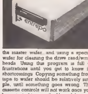
Entrepo Inc, the original American manufacturers of the wafer hardware used by Rototronics, are now offering a complete system for the Commodore machines You would expect them to be able to get the most out of the hardware in terms of performance and value for money Be prepared to have your expectations dashed

Quick Data Drive comes with the drive itself, a manual, and a master tape cartridge (wafer) containing the operating system software It is coloured to match the C64 and is cased in metal to meet the American laws on radio interference. A 1.8m lead plugs into the cassette port and there is a second part provided on the drive to let you add in your cassette or a further Quick Drive.

The manual is adequate and, in the usual American way, gives you a photograph to show how to plug the hardware in, but is no help at all in how to get the most out of the system

To load the system software you must start up as if you were loading a program from cassette From there on you can load files, save files, open sequential files, and verify stored files just as if you were using the C2N Well, not quite, data transfer is much faster and you do not have to use fast forward/reverse Also, as the Quick Drive software occupies 4K of memory (Vic 20 owners need at least 24K extra memory to use the full Quick Drive) many commercial programs cannot be run

Also provided by Entrepo is a software utility which lets you copy program or eequenual files between cassette and wafes or disc and wafer With the 4K program you also get the commands necessary for formatting unw wafers, reading a wafer contents, copying



the master wafer and using a special wafer for cleaning the drive read/write heads Using this program is full of frustrations until you get to know its shortcomings Copying something from tape to wafer should be relatively simple, until something goes wrong The cassette controls will not work once you have started to copy the file and thus you cannot rewind to have another go if, say, the wafer is too full to take the file

After some hours uesd I decided that the Quick Data Drive hardware is excellent but let down by poor software There is no facility to erase unwanted files, for example Nor can you overwrite existing files Without offering some of the facilities of a disc system it is difficult to see where the Quick Drive fits in.

I think that this American import needs further development before it could be given the Cochrane Approval Sticker

John Cochrane

Big Bad Jake

Can you get Jake to Mexico in this cowboy classic for the Spectrum 48K by Peter Watson

Jake is getting ready for his holidays in Mexico but he is a a bit short of spending money. You have to help him 'borrow' $500 from the local bank without getting shot by the Sheriff.

Each time he reaches the front door of the bank $100 is collected, but this must be returned to Jake's hideout before it is his to keep. At first Jake can avoid the Sheriff fairly easily, but as more money is taken the more quick witted the Sheriff becomes. Jake has three lives. A status report is given at the bottom of the screen, ie, money collected and lives left. The controls are 5=move left, 6=move down, 7=move up, and 8=move right.

Program Notes

The program consists of a main play loop, ie, move Jake/Sheriff, with calls to other routines as the game progresses.

The following points should be noted:–

a) Extensive use is made of the *Attr* command. Any changes to colours used in the play area should be made with care, this applies also to the global *Ink* colour given in Line 3.

b) A total of 26 UDGs are required. 14 are set up initially to form the basic screen display; 12 more are set up prior to the commencement of the game proper to form characters required during play. Five of the initial set of characters are therefore overwritten in memory.

c) Line 20 determines the Sheriff's 'intelligence'. If the sum of the loot number (ie, 1 to 4) and the random number is less five the Sheriff will remain where he is for that cycle of the loop.

d) Enter the letters between quotation marks in Graphics Mode except where they form words.

e) When all the listing has been entered and checked the program should be seved and verified by using *Goto 9000*.

Line No	
3-10	Sub-routine calls, ie, title, instructions and graphics
11-28	Main play loop
100-110	Sheriff fires gun.
201-208	Lose a life
300-306	Dead Jake/end of game
500-506	Loot back to hide-out
600-605	Win game
700-702	Reprint bank, ie, in set bank to BRIGHT 1 or 0 depending on state of play
1000-1013	Screen
2000-2008	Instructions
3000-3007	Title
4000-4013	Screen graphics
5000-5012	Play graphics
9000-9004	Save and verify game

Variables	
x,y	Co-ordinates of Jake's position.
p,q	Co-ordinates of Sheriff's position.
lives	Number of lives.
brt	Brightness of Jake and Bank.
loot	Loot number
dist	Distance between Sheriff and Jake



```
   1 REM [redacted]
   3 PAPER 0: INK 5: BORDER 0: C
LS
   4 GO SUB 3000: CLS
   5 GO SUB 9000: CLS
   6 GO SUB 4000
   7 BORDER 4: CLS : GO SUB 1000
   8 LET lives=3: LET brt=0: LET
 loot=0
   9 LET x=0: LET y=10
  10 LET p=21: LET q=16
  11 REM [redacted]
  12 LET a=x: LET b=y
  13 LET x=x-(INKEY$="5" AND x>0
 AND ATTR (y,x-1)<8 AND ATTR (y+
1,x-1)<8)+(INKEY$="8" AND x<30 A
ND ATTR (y,x+2)<8 AND ATTR (y+1,
x+2)<8)
  14 LET y=y-(INKEY$="7" AND y>0
 AND ATTR (y-1,x)<8 AND ATTR (y-
1,x+1)<8)+(INKEY$="6" AND y<20 A
ND ATTR (y+2,x)<8 AND ATTR (y+2,
x+1)<8)
  15 IF a<>x OR b<>y THEN PRINT
AT b,a;"  ";AT b+1,a;"  "
  16 PRINT AT y,x; INK 5; BRIGHT
 brt;"LM";AT y+1,x;"NO"
  17 BEEP .01,60
  18 IF ATTR (y-1,x)=7 AND ATTR
(y-1,x+1)=7 THEN GO SUB 601
  19 IF x=0 AND y=10 AND brt THE
N GO SUB 601
  20 IF (p)<INT (RND*7)<0 THEN
GO TO 20
  21 PRINT AT q,p;"  ";AT q+1,p;
"  "
  22 IF p>x AND ATTR (q,p-1)<8 A
ND ATTR (q+1,p-1)<8 THEN LET p=p
-1
  23 IF p<x AND ATTR (q,p+2)<8 A
ND ATTR (q+1,p+2)<8 THEN LET p=p
+1
  24 IF q>y AND ATTR (q-1,p)<8 A
ND ATTR (q-1,p+1)<8 THEN LET q=q
-1
  25 IF q<y AND ATTR (q+2,p)<8 A
ND ATTR (q+2,p+1)<8 THEN LET q=q
+1
  26 PRINT AT q,p; BRIGHT 1; INK
 4;"LM";AT q+1,p;"NO"
  27 IF y=q THEN GO SUB 101
  28 GO TO 12
 100 REM [redacted]
 101 IF p=x OR ATTR (q,p-1)<>0 O
R ATTR (q+1,p-1)<>0 OR ATTR (q,p
+2)<>0 OR ATTR (q+1,p+2)<>0 THEN
 RETURN
 102 IF p<x THEN GO TO 107
 103 IF p>x THEN LET dist=p-x: B
EEP .1,-10
 104 FOR b=1 TO dist-1
 105 PRINT AT q,p-b-1; INK 5;"w"
 106 NEXT b: GO TO 201
 107 LET dist=x-p: BEEP .1,-10
 108 FOR b=1 TO dist-1
 109 PRINT AT q,p+b+1; INK 5;"w"
 110 NEXT b: GO TO 201
 200 REM [redacted]
 201 PRINT AT y,x; INK 2; FLASH
1;"LM";AT y+1,x;"NO"
 202 BEEP .5,10: BEEP .5,10: BEE
P 1,0
 203 LET lives=lives-1: LET brt=
0
 204 GO SUB 701
 205 IF lives=0 THEN GO TO 301
 206 PRINT #0; PAPER 2; INK 7;AT
 1,14;lives
 207 PRINT AT y,x; INK 0;"  ";AT
 y+1,x;"  ";AT q,p;"  ";AT q+1,p
;"  "
 208 PAUSE 50: GO TO 9
 300 REM [redacted]
 301 PRINT AT y,x; INK 7;"RS";AT
 y+1,x;"TU": PAUSE 50
 302 PAUSE 50: POKE 23658,8: INP
UT "      Another Game? (Y/N) ";
LINK z$
 303 IF z$="Y" THEN GO TO 6
 304 IF z$="N" THEN CLS : GO TO
305
 305 IF z$<>"Y" OR z$<>"N" THEN
GO TO 302
 306 PRINT ""; INK INT (RND*7)+1;
 BRIGHT 1;TAB RND*14;"OK, SO LON
G GRINGO": POKE 23692,255: PAUSE
 5: GO TO 306
 400 REM [redacted]
 401 FOR t=0 TO 60 STEP 10
 402 BEEP .01,t
 403 NEXT t
 404 LET brt=1
 405 GO SUB 701
 406 RETURN
 600 REM [redacted]
 601 BEEP .1,10: BEEP .1,40
 602 LET loot=loot+3: LET brt=0
 603 GO SUB 701
 604 PRINT #0;AT 1,3; PAPER 2; I
NK 7;loot+100
 605 IF loot=45 THEN GO TO 651
 606 RETURN
 650 REM [redacted]
 651 CLS
 652 FOR v=1 TO 5: FOR w=0 TO 7
 653 PRINT AT 8,7; BRIGHT 1; INK
 w;"W E L L   D O N E";AT 12,4;
INK w;"Jake is off on his hols!
": BEEP .01,20: BEEP .01,40: B
EEP .01,30
 654 NEXT w: NEXT v
 655 GO TO 302
 700 REM [redacted]
 701 PRINT AT 10,26; INK 7; BRIG
HT brt;"JK";AT 11,26;"CH"
 702 RETURN
1000 REM [redacted]
1001 FOR a=2 TO 18 STEP 6
1002 FOR b=0 TO 29 STEP 6
1003 PRINT AT a,b; INK 0;"EF";AT
 a+1,b;"GH": BEEP .01,b: BEEP .0
1,0
1004 NEXT b: NEXT a
1005 FOR b=0 TO 20 STEP 2
1006 PRINT AT b,0; INK 4; BRIGHT
 1;"IJIJIJ";AT b+1,0;"KLKLKL"
1007 NEXT b
1008 PRINT AT 10,4; INK 5;"AB";A
T 11,4;"CD"
1009 PRINT AT 10,26; INK 7;"MN";
AT 11,26;"OP"
1010 PRINT #0;AT 0,0; INK 2; [redacted]
"; INK 7; [redacted]
 PAPER 1;"    JAKE"
1011 PRINT #0;AT 0,2; PAPER 2; I
NK 7;"Loot";AT 0,12;"lives";AT 1
,2;"00";AT 1,14;"3"
1012 GO SUB 5000
1013 RETURN
3000 REM [redacted]
3001 PRINT AT 2,0; INK 4; BRIGHT
 1;"THE STORY SO FAR ...."
3002 PRINT AT 3,0; INK 7;"Our fr
iend Jake is getting ready for hi
s hols in Mexico but he's a bit
short of spending money."
3003 PRINT AT 7,0; INK 7;"Can yo
u help him 'borrow' some from h
is local bank, without gettin
g shot by the sheriff."
3004 PRINT AT 11,0; INK 7;"Howev
er he must get his loot back
to his hideout for safe keepi
ng."
3005 PRINT AT 15,0; INK 4; BRIGH
T 1;"Controls -"; INK 8; BRIGHT
0;"        7
           |
       5- -8
           |
           6"
3006 PRINT #0;AT 1,0; PAPER 2; I
NK 5; FLASH 1;"      Press any ke
y to play"
3007 PAUSE 0: BEEP .1,30
3008 RETURN
3000 REM [redacted]
3001 PRINT AT 0,2; INK 1;"

G              Bi

3002 PRINT AT 7,0; INK 2;"

3D             Bl

3003 PRINT AT 14,0; INK 7;"

AKE            J.

3004 PRINT AT 21,16; INK 7;"by P
eter Watson"
3005 PRINT #0;AT 1,0; INK 8; FLA
SH 1; PAPER 0;" Press any key fo
r instructions "
3006 PAUSE 0: BEEP .1,30
3007 RETURN
4000 REM [redacted]
4001 RESTORE 4000
4002 FOR n=1 TO 16
4003 BEEP .005,30n
4004 READ a$
4005 FOR p=0 TO 7
4006 READ q: POKE USR a$+p,q
4007 NEXT p: NEXT n
4008 DATA "A",48,24,87,180,180,2
30,200,127,"B",180,90,150,220,24
0,200,200,224,"C",180,180,180,30
0,127,127,127,127,"D",000,190,19
0,180,190,180,190,190
4009 DATA "E",121,163,255,250,25
5,163,143,163,"F",180,241,200,96
,255,241,201,241,"G",255,255,180
,140,180,005,AKD,005,"H",001,255
,48,48,48,83,83,83
4010 DATA "I",0,1,3,1,3,7,15,3,"
J",180,180,224,180,224,240,240,0
24,"K",7,15,31,48,1,1,1,0,"L",80
0,240,255,180,180,180,180,0
4011 DATA "M",180,180,240,200,24
0,224,240,224,"N",200,240,83,255
,63,181,83,255
4012 RETURN
5000 REM [redacted]
5001 RESTORE 5000
5002 FOR n=1 TO 10
5003 BEEP .005,40-13n)
5004 READ a$
5005 FOR p=0 TO 7
5006 READ q: POKE USR a$+p,q
5007 NEXT p: NEXT n
5008 DATA "J",180,180,240,200,24
0,224,240,224,"K",225,242,83,255
,63,181,83,255
5009 DATA "L",0,3,7,47,79,119,18
,18,"M",0,192,224,244,242,14,240
,80,"N",18,14,15,0,35,7,3,0,"O",
80,112,240,18,240,224,192,0
5010 DATA "P",18,14,15,4,7,3,1,0
,"Q",80,112,240,52,224,192,128,0
5011 DATA "R",3,15,63,127,180,18
7,180,182,"S",180,224,240,250,25
2,252,140,172,"T",180,185,127,18
7,187,187,187,187,"U",172,180,18
0,180,180,252,252,252
5012 RETURN
9000 REM [redacted]
9001 CLS : SAVE "JAKE" LINK 1
9002 PRINT AT 10,0; FLASH 1;"Re-
wind tape then run to VERIFY."
9003 VERIFY "JAKE"
9004 PRINT AT 10,0; FLASH 1;"
T A P E   V E R I F I E D   "
STOP
```

Down in the dumps

Screen dumps for the CPC464 using the DMP 1 printer

by **Anil Jagota**

This routine provides the CPC464 user with a method of reproducing the CPC464's screen display on paper using the DMP1 printer. If other printers are used the machine code will have to be modified for that particular printer.

The actual machine code was derived from the Basic program in Listing 1. The machine-code program has added advantages over the Basic program in that it is faster, more compact and offers more features. The features offered are double height, inverted output and abort. The machine-code version is approximately 150 times faster than the Basic version.

If you own a copy of Hisoft-Devpac then Listing 2 can by typed in and compiled. If not then Listing 3 can be typed in and run.

The finished program can be saved with the following *Save filename ,B,43650,250*

If you have typed in Listing 3 then first *Save* the Basic program before running as mistakes may cause the computer to crash. After saving the program, it can be run.

When loading the program, firstly the memory must be set to *43649*; this can be done by *,Memory 43649*. To test the program simply type *Call 43650*. If the program has been typed in correctly then an exact copy of the screen will be on the printer.

To use the extra features a location called optico (located at *43697*) in the program must be poked. This is done by the following line *POKE 43697,x*. *x* is derived from the following table.

	0	1	2	3
DOUBLE HEIGHT	N	Y	N	Y
INVERTED	N	N	Y	Y

KEY Y=yes N=no

To use the last feature, which is abort, simply press the space bar for a few seconds (while the program is running), and the program will return to Basic. The machine code program uses four of the CPC464's Rom routines the first being *Gra Test Absolute (&BBF0)*, the second *Mc Busy Printer (&BD2E)*, the third *Mc Print Char (&BD31)* and, finally, the fourth *Km Test Key (&BB1E)*.

Be sure to start each screen dump on a new sheet of paper so a whole sheet is used. Also after calling the routine, the printer will remain in graphics mode and no printing can be done by the printer before the following line is entered, *Print #8,Chr$(15)*.

Fig 1

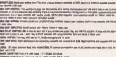
```
10 REM SCREEN DUMP COPYRIGHT A.JAGOTA 1985
20 WIDTH 255
30 FOR x=0 TO 639 STEP 7
40 FOR y=8 TO 408
50 total=0
60 IF (TEST(x,y)MOD 2<>0) THEN total=total+1
70 IF (TEST(x+1,y)MOD 2<>0) THEN total=total+2
80 IF (TEST(x+2,y)MOD 2<>0) THEN total=total+4
90 IF (TEST(x+3,y)MOD 2<>0) THEN total=total+0
100 IF (TEST(x+4,y)MOD 2<>0) THEN total=total+16
110 IF (TEST(x+5,y)MOD 2<>0) THEN total=total+32
120 IF (TEST(x+6,y)MOD 2<>0) THEN total=total+64
130  PRINT#0,CHR$(27),CHR$(75);CHR$(0);CHR$(1);
CHR$(total);
140 NEXT y
150 PRINT#0,CHR$(13)
160 NEXT x
```

Fig 3

```
10 REM MACHINE-CODE SCREEN DUMP.
COPYRIGHT A.JAGOTA 1985
20 MEMORY 43649
30 LOCATION=43650
40 FOR X=0 TO 11
50 READ A$
60 FOR Y=1 TO 39 STEP 2
70 N$="&"+MID$(A$,Y,2)
80 POKE LOCATION,VAL(N$)
90 LOCATION=LOCATION+1
100 NEXT Y:NEXT X END
110 DATA "CD200D110000210BB0ED5373A03EB83272ABED5B"
120 DATA "73ABCD54A0CDF8BB110100CD64A011B2B8CD64A0"
130 DATA "110400CD64A01108BBCD64A0111000CD64AB112B"
140 DATA "B0CD64AB114080CD3EABCD2EBD30F0CD200D3E10"
150 DATA "CD2BBD3E40CD200D3E00CD2BBD3A79A0C04720BD"
160 DATA "3E02CD2BBD3A72ABCD200D18B53E01CD200D3A72"
170 DATA "A0CD2BBDCD5CAB2323CD54A07CFE01C2BFAA7DFE"
180 DATA "90C20FAA3EBACD2BBD3E2FCD1EB0C02A73AB1107"
190 DATA "88192273A0210000CD54ABED5B73A07AFE02C2BF"
200 DATA "AA70FEB4C2BFAAC9473A79A0C04F2B01047BC047"
210 DATA "28072A72AB192272A0C92275ABED5377ABC92A75"
220 DATA "A0ED5077ABC9CD3EA0CD5CA013CD54A0CDF8BBC9"
```

Fig 2

```
10       MACHINE CODE SCREEN DUMP COPYRIGHT A.JAGOTA 1985
20       ORG  43650
30       ENT  @
40 INIT  CALL #BC20          INITIALISE
50       LD   DE 0
60       LD   HL 0
70       LD   (LOC1) DE
80 LOOP  LD   A 0            MAIN LOOP
90       LD   (TOTAL) A
100      LD   DE (LOC1)
110      CALL PUSHER
120 BIT0 CALL #BBF0          TEST INK OF (X Y)
130      LD   DE 1
140 BIT1 CALL ADINC          TEST INK OF (X+1 Y)
150      LD   DE 2
160 BIT2 CALL ADINC          TEST INK OF (X+2 Y)
170      LD   DE,4
180 BIT3 CALL ADINC          TEST INK OF (X+3 Y)
190      LD   DE 8
200 BIT4 CALL ADINC          TEST INK OF (X+4 Y)
210      LD   DE 16
220 BIT5 CALL ADINC          TEST INK OF (X+5 Y)
230      LD   DE 32
240 BIT6 CALL ADINC          TEST INK OF (X+6 Y)
250      LD   DE 64
260      CALL ADDER
270 PORT CALL #BD2E          TEST CENTRONICS PORT
280      JP   C PORT
290      CALL #BD2E
300 SEND LD   H              IF NOT BUSY THEN OUTPUT
310      CALL #BD2B              CHARACTERS
320      LD   H
330      CALL #BD2B
340      LD   A 8
350      CALL #BD2B
360 HEIGHT LD A (OPTION)     TEST FOR DOUBLE HEIGHT
370      BIT  0 A            OPTION
380      JR   Z NORMAL
390 DOUBLE LD A 2            IF DOUBLE PRINT TWICE
400      CALL #BD2B
410      LD   A (TOTAL)
420      CALL #BD2B
430      JR   CONT
440 NORMAL LD A 1            IF NORMAL PRINT ONCE
450      CALL #BD2B
460 CONT LD   A (TOTAL)
470      CALL #BD2B
480 TESTY CALL POPER         NEXT
490      INC  HL             Y=Y+2
500      INC  HL
510      CALL PUSHER
520      LD   A H            IF      400 THEN REPEAT
530      CP   1              MAIN LOOP
540      JP   NZ LOOP
550      LD   A L
560      CP   144
570      JP   NZ LOOP
580      LD   A 10
590      CALL #BD2B
600 KEYS LD   A 4            TEST FOR ABORT KEY
610      CALL #BB1E          IF PRESSED ABORT PROG.
620      RET  NZ
630 TESTX LD  HL (LOC1)      NEXT X
640      LD   DE 7
650      ADD  HL DE          X=X+7
660      LD   (LOC1) HL
670      LD   HL 0
680      CALL PUSHER
690      LD   DE (LOC1)      IF X<=644 THEN REPEAT
700      LD   A,D            MAIN LOOP & Y=0
710      CP   2
720      JP   NZ LOOP
730      LD   A E
740      CP   132
750      JP   NZ LOOP
760      RET
770 ADDER LD  E A            IF OPTION SET TO INVERT
780      LD   A (OPTION)
790      BIT  1,A
800      JP   Z NONINV
810 INVERT INC B             IF YES THEN INVERT
820 NONINV LD A,B            IF NO THEN NORMAL
830      BIT  0 A
840      JR   Z,FIN
850      LD   HL (TOTAL)
860      ADD  HL DE
870      LD   (TOTAL) HL
880 FIN  RET
890 PUSHER LD (LOC2),HL      SUBROUTINE TO SAVE
900      LD   (LOC3) DE          HL & DE
910      RET
920 POPER LD  HL (LOC2)      SUBROUTINE TO RETRIEVE
930      LD   DE (LOC3)          HL & DE
940      RET
950 ADINC CALL ADDER         SUBROUTINE TO ADD
960      CALL POPER             RETRIEVE X=X+1
970      INC  DE                AND SAVE
980      CALL PUSHER            AND CALL TEST(X Y)
990      CALL #BBF0
1000     RET
1010 TOTAL DEFS 1            LOCATION OF ALL
1020 LOC1 DEFS 2                VARIABLES
1030 LOC2 DEFS 2
1040 LOC3 DEFS 2
1050 OPTION DEFS 1
```

Screen store

*Macros explained in the first part of **Adrian Warman's** Screen Bank program*

One of the first things that a newcomer to the world of machine code programming encounters is a whole new range of jargon words, such as 'Assembler', or 'Relative and Absolute', and many others However, one jargon word that is frequently overlooked or skimmed past by any introductory text is that of the Macro and its companion, the Macro-Assembler. Even the more advanced text books tend to refer to Macros in such terms as ' like subroutines but with the code duplicated each time the routine is used. '

In a sense this description is accurate, but does tend to leave the reader with a feeling that Macros are of little use After all, why use Macros (which may take up loads of memory space), if they are just the same as ordinary subroutines? The answer lies in the fact that Macros are *not* the same as subroutines as far as the Assembler is concerned.

It may be easier at this point to consider an analogy Most powerful languages, such as Comal and Pascal, allow the programmer to define Procedures', which enable top-down or 'structured' programming in the machine code world, a good assembler (which corresponds to the powerful high level language program) will allow you to define Macros (Hence a 'Macro-Assembler' is simply an Assembler that allows you to define Macros) Surprising as it may seem, it is possible to define a sufficient number of Macros to make machine code programming easier than writing an equivalent program in a more general high-level language Taken with the great advantage of very much faster execution speeds Macros provide an even greater incentive for micro-computer owners to learn machine code when writing *any* programs, not just games, but also that accounts program they were always intending to get around to

This article contains a program which demonstrates and uses Macros, called PBank But first let us try to define exactly what a Macro is.

From the purely machine code point of view, a minimal definition of a Macro is 'a separate piece of code that can be duplicated at will throughout the main program'. What does this mean? A simple example should make things a little clearer Given that the programmer types in the following (meaningless!) source code

```
.mac silly; defines the Macro.
lda #$00
sta $fff
mnd; end of the Macro.

;
;
main ldx #$00, the main program.
silly; use the macro here ...
ldy #$00
silly, ... and here
rts
```

When this source code is run through a Macro-Assembler, the code will be read by the Macro-Assembler as if the programmer had actually typed in.

```
main lda #$00; the main program
lda #$00; use a macro here ... .
sta $ffff
ldy #$00
lda #$00; ... and here
sta $ffff
rts
```

This particular example in fact shows the reason why novice programmers tend to avoid Macros It is perfectly correct that in this example the coding would have been made more efficient by using normal subroutines So, again we ask Why use Macros?

More obvious reasons why may include the fact that the subroutine stack simply could not hold another return address, or that too much time would be taken to perform the subroutine call and then to return. However, the best reason revolves around the simple fact that we have not fully defined what a Macro is

Earlier, it was stated that there is a correspondence between high-level 'Procedures' and Macros Almost invariably, procedures can have 'parameters' passed into them, which can then optionally be modified by the procedure In the same way, Macros can *also* have parameters, although the degree and manner in which they are used differs slightly from high-level procedures. Unfortunately, the method of implementing parameters in Macros is by no means standardised, a problem made worse by the comparative rarity of Macro-Assemblers themselves For the purpose of this article, the excellent Commodore 'Macro Assembler Development System' is used. In this package, a Macro may have up to 9 (numeric) parameters designated as *?1* to *?9* inclusive

When a parameter has been defined for a particular Macro, it can then be used anywhere within the Macro However, unlike high-level procedures, the Macro parameters cannot be modified upon return to the main source code

How are parameters implemented? The CBM Macro-Assembler assumes that parameters *always* exist Whether you use them or not is entirely up to you As a result, the Macro definition itself does not need to be told that there are parameters, it simply uses them if told to do so In the main program however, the parameters must be defined if they are going to be used. A simple example would be as follows

```
1000 REM BASIC LOADER FOR PBANK PROGRAM.
1010 :
1020 REM BY A.WARMAN
1030 :
1040 ADDRESS=49152
1050 SUM=0
1060 :
1070 FOR LOC=ADDRESS TO ADDRESS+226
1080  READ DATUM
1090  POKE LOC,DATUM
1100  SUM=SUM+DATUM
1110 NEXT LOC
1120 :
1130 IF SUM<>27449 THEN PRINT "SUM ERROR
1140 :
1150 STOP
1160 :
1170 DATA  76, 48,192, 76, 23,192,  0,  0,  0,  0,  0,  0,  0,  0,  0
1180 DATA 160,  0,160,  0,176,  0,184,169,  0,160,  4,133,  4,192,136, 16
1190 DATA 250,173,136,  2,141, 14,192,238,  4,192, 96,162, 23, 76, 50,164
1200 DATA  32,211,192,142, 11,192,189,  0,192,240,  4, 32,211,192,236, 11
1210 DATA 192,240,232,189,  4,192,  0,  1,157,  4,192,138, 10,170,141, 12
1220 DATA 192,189, 13,192,133,253,189, 14,192, 24,105,  0,133,254,177, 11
1230 DATA 192, 10,170,141, 11,192,189, 13,192,133,251,189, 14,192, 24,105
1240 DATA   0,133,252,120,165,  1, 41,254,133,  1, 32,192,192,174, 11,192
1250 DATA 240, 15,189, 13,192,133,251,189, 14,192, 24,105,  4,133,252,144
1260 DATA   8,169,  0,133,251,169,216,133,252,174, 12,192,240, 15,189, 13
1270 DATA 192,133,253,189, 14,192, 24,105,  4,133,254,144,  8,169,  0,133
1280 DATA 253,169,216,133,254, 32,192,192,165,  1,  9,  1,133,  1, 88, 96
1290 DATA 162,  4,160,  0,177,251,145,253,200,208,249,230,252,230,254,202
1300 DATA 208,242, 96, 32,253,174, 32,158,183,224,  5,144,  5,162, 14, 76
1310 DATA  58,164, 96
```

```
.mac poke; define the macro
lda #?2, ?2 first parameter
sta ?1, ?1 first parameter
.mnd
;
;
main poke 53280,0, a valid command!
poke 53281,0, screen blacks out
poke 646,5, text becomes green
rts
```

This is quite a fascinating example. Simply by defining the Macro under the name *Poke*, we have created an exact, *working* machine code equivalent for the Basic command *Poke*. Even better, it is used in the source code in *exactly* the same way as the genuine Basic command.

Suddenly, a vast new range of options becomes open to you, simply by creating the new 'commands' that you want. In addition, Macros can usually be nested (just like subroutines) – although on the CBM Macro-Assembler the nesting cannot exceed eight levels.

It must still be admitted that each time the Macro is used, a certain amount of the Macro *is* duplicated (although when parameters are used, this effect is minimised). However, with machines today having up to 64K of memory (such as the CBM 64), memory restrictions are no longer the main impediment to programmers. Furthermore, because the code is placed directly into the main program in sequence, it tends to be a little faster than using subroutines. In addition, each Macro can be defined and tested individually (just like procedures). If it works once, it will always work. Finally, by defining more powerful Macros, a whole machine-code 'command language' can be built up, which reduces the time to write machine-code programs by a staggering factor, and will also reduce the number of errors, and even the time to debug the final program.

This program (PBank) provides the standard CBM 64 computer with the ability to hold a 'bank' of main screen displays. At any time, the currently displayed main screen may be copied to one of the storage screens. If a particular storage screen has some valid data in it, the data can be copied to either another storage screen, or back to the main screen. In all cases, regardless of where a screen is moving to, it will completely overwrite whatever was present before the move. Four storage screens are provided, and each will also hold the correct colour data, so that the display will be returned exactly as it was when stored. However, the cursor position is *not* stored or altered, since this is not always desirable. It may be advisable to print a 'Home' character whenever a storage screen is moved to the main screen so that you always know where the cursor is.

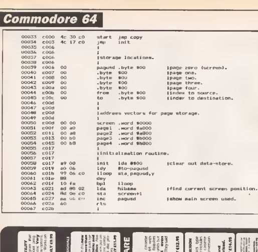
The routine is loaded by entering and executing the supplied Basic loader program. This places the machine code routines into the spare memory from $c000 onwards. To prepare the storage banks to accept and transfer copies of the main screen, perform a *Sys 49155* command in either program or direct mode. This will reset the data flags. In addition, using this command can be used to reset the complete set of storage screens, while leaving the main screen unaltered. If at any time the position of the main screen in memory should alter, the program must be re-initialised in the manner described, as otherwise any attempt to copy data from a storage screen back to the main screen will not appear or even worse will overwrite an area of memory.

In order to copy a screen from one store to another (or to-and-from the main screen), the command *Sys 49152,from,to* – is used, again in either program or direct mode. The main screen is referred to as screen number 0 (zero), and there are *four* storage screens numbered 1 (one) to 4 (four) inclusive. Any attempt to access a screen using a number outside of the range 0 to 4 inclusive will produce an illegal quantity error. *From* is the screen number that is used to supply the data, and *to* is the number of the screen that the data is placed into. It is impossible to transfer from one screen back into the same screen in one command.

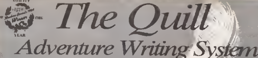
Thus, *Sys 49152,0,1* will copy from the main screen to storage screen number one. Similarly, *Sys 49152,3,0* will copy storage screen number three back onto the main screen. Finally, *Sys 49152,2,4* would copy storage screen two to screen four, but *only* if valid data has already been placed in screen two. Once valid data has been placed into a given storage screen, then that screen can be used as the *from* screen. Initialising the program by the *Sys 49155* command will reset the flags in the program to indicate that there is no data in any of the storage screens.

Part Two will appear in Vol 4 No 9

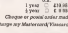
```
0000   *=$c000
c000   ;
c000   ;screen storage bank.
c000   ;
c000   ;by a.warman
c000   ;
c000   ;
c000   ;define additional command.
c000   ;
c000   .mac   vec
c000   lda    screen,x
c000   sta    ?1
c000   lda    screen+1,x
c000   clc
c000   adc    #?2
c000   sta    ?1+1
c000   .mnd
c000   ;
c000   ;
c000   ;define system locations.
c000   ;
c000   chipio=$0001
c000   source=$00fb
c000   dest=$00fd
c000   hibase=$0288
c000   tstcom=$aefd
c000   getbyt=$b79e
c000   errmsg=$a437
c000   ;
c000   ;
c000   ;define easy-to-use jump table.
c000   ;
```

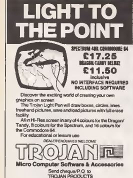


```
c000  4c 30 c0    start  jmp copy
c003  4c 17 c0    jmp    init
c006              ;
c006              ;
c006              ;storage locations.
c006              ;
c006  00          pagusd .byte $00      ;page zero (screen).
c007  00          .byte  $00            ;page one.
c008  00          .byte  $00            ;page two.
c009  00          .byte  $00            ;page three.
c00a  00          .byte  $00            ;page four.
c00b  00          from   .byte $00      ;index to source.
c00c  00          to     .byte $00      ;index to destination.
c00d              ;
c00d              ;
c00d              ;address vectors for page storage.
c00d              ;
c00d  00 00       screen .word $0000
c00f  00 a0       page1  .word $a000
c011  00 a8       page2  .word $a800
c013  00 b0       page3  .word $b000
c015  00 b8       page4  .word $b800
c017              ;
c017              ;initialization routine.
c017              ;
c017  a9 00       init   lda #$00       ;clear out data-store.
c019  a0 06       ldy    #to-pagusd
c01b  99 06 c0    iloop  sta pagusd,y
c01e  88          dey
c01f  10 fa       bpl    iloop
c021  ad 88 02    lda    hibase         ;find current screen position.
c024  8d 0e c0    sta    screen+1
c027  ee 06 c0    inc    pagusd         ;show main screen used.
c02a  60          rts
c02b              ;
```


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In black and white

A version of the classic game Othello for the QL by ***Malcolm Scorer***

Othello is an ancient board game which fairly recently has become quite popular. Perhaps the main reason for this popularity is the fact that it's a very easy game to learn. The game is played by two players on a board with 64 squares (8 * 8), each player having a set of pieces or discs, coloured white on one side and black on the reverse.

The object of the game is to capture as many pieces as possible, this is achieved by 'trapping' one or more of your opponent's discs between two of your own, those 'trapped' in this way are then turned over and become yours. Your opponent (in this case the computer) then takes his turn and tries to do likewise. The winner is the one who, at the end of the game, ie, when all the squares are filled or no-one can move, has the most discs.

You play white and the computer plays black, white moving first. Moves are entered as a two digit number corresponding to the row and column of the square you wish to place your disc, eg, row 1 and column 1, you type '*11*' and then '*ENTER*'.

After checking for a valid move, your disc will be drawn in the correct square and all trapped discs turned over. The score will then be updated and the computer will make its move. If during the course of the game you are unable to move then you must miss a turn. To do this, type '*s*' and '*ENTER*' and the computer will then make another move. If the computer is unable to move, a message will be displayed on the screen and you may then move again.

Throughout the game a score is kept of the number of discs each player has, displayed on the right-hand side of the screen and is updated after each player's move.

Program notes

Line No	
220-340	*Game*. This is the main control loop.
370-580	*Play*. Scans the game board in all directions around the selected square checking the move is valid, if it is the disc is drawn in that square and all trapped discs turned over
810-880	*Init*. Initialises variables, sets up the windows and draws the game board.
900-950	*Mov(x$)* Draws a game disc at row, column held in x$
980-1210	*Keyin*. Reads keyboard for players move, checks for correct input range and that the square is empty before calling *Play* procedure
1240-1400	*Computer*. Performs computers move by cycling through data table looking for a valid move and then calling play procedure
1430-1470	*Data*. Table of values used by *Computer* procedure.
1500-1580	*Errmess*. Prints error message and then removes the incorrectly placed disc from the board.
1590-1620	*Swap*. Computer unable to move message
1650-1800	*Score*. Keeps and prints the current score for both players. Also checks for a full board which indicates the end of the game
1830-1900	*Done*. Prints 'game over' and gives option to play again.

```
10REM*****************************
20REM******   MATRICES   ********
30REM******   BY ME      ********
40REM*****************************
50MODE4
60CLEAR
70VDU19,1,3;0;
80VDU23,244,0,254,254,254,254,254,254,0,0
90VDU23,245,0,255,255,255,255,255,0,0,0
100VDU23,0,8202,0;0
110NO%MAT=0
120ROW1%=1:COL2%=1
130:
140ONERROR:CLS:PRINTTAB(14,14);"E R R O R":SOUND1,-8,233,4:
A=INKEY(100)
150PROC_START
160:
170DEFPROC_START
180:
190VDU19,1,3;0;
200CLS
210VDU31,15,1:PRINT
220VDU31,15,2:PRINT"MATRICES"
230PRINTTAB(13,3)STRING$(12,CHR$244)
240Xcord=7:Ycord=7
250VDU31,Xcord,Ycord:PRINT"1. Enter matrices."
260VDU31,Xcord,Ycord+1:PRINT"2  Multiply."
270VDU31,Xcord,Ycord+2:PRINT"3. Add."
280VDU31,Xcord,Ycord+3:PRINT"4  Subtract."
290VDU31,Xcord,Ycord+4:PRINT"5. Transpose."
300VDU31,Xcord,Ycord+5:PRINT"6  Save matrix."
310VDU31,Xcord,Ycord+6:PRINT"7  Load matrix."
320VDU31,Xcord,Ycord+7:PRINT"8. End"
330VDU31,Xcord-2,Ycord+10:PRINT"Escape to return to menu"
340*FX15,0
350VDU31,Xcord,VPOS+5:PRINT   Enter   Choice  >> ";VDU31,Xco
rd+20,(VPOS-1):INPUT""CHOICE$
360VDU19,1,7;0;
370IF CHOICE$="1"  THEN PROCMATRIX
380IF CHOICE$="2" THEN PROC_MULTIPLY(ROW$MAT)
390IF CHOICE$="3"  THEN PROCADD(ROW1%,COL1%)
400IF CHOICE$="4" THEN PROCSUBTRACT(ROW1%,COL1%)
410IF CHOICE$="5" THEN PROC TRANSPOSE(ROW1%,COL1%,ROW2%,COL
2%)
420IF CHOICE$="6  THEN PROC_SAVE(ROW1%,COL1%,ROW2%,COL2%,NO
ofMAT)
430IF CHOICE$="7" THEN PROC_LOAD
440IF CHOICE$="8" THEN CLS:PRINTTAB(12,12)" B Y E ":END
450GOTO190
460ENDPROC
470REM*****************************
480DEFPROCMATRIX
490REM*****************************
500REPEAT
510REPEAT
520VDU19,1,6;0;
530CLS
540PRINTTAB(12,1) "  MATRIX  ENTRY  "
550PRINTTAB(12,2);STRING$(17,CHR$244)
560VDU31,0,4:INPUT"  ONE OR TWO MATRICES  :"NOofMAT
570UNTIL NOofMAT=1 OR NOofMAT=2
580VDU31,0,6:INPUT" SIZE OF MATRIX ONE ( ROW BY COL) : ROW1
%  " BY :"COL1%
590IF COL1%<1 OR ROW1%<1 THEN SOUND1,-12,203,10:PRINTTAB(12
,12)"  Silly ! ":PRINTTAB(12,20)"PRESS ANY KEY":A=GET
600UNTIL ROW1%>0 AND COL1%>0
610DIM MATRIX1(ROW1%,COL1%)
620DIM ADD(ROW1%,COL1%)
630DIM MIN(ROW1%,COL1%)
640:
650PROC_ENTRY(ROW1%,COL1%,1)
660:
670IF NOofMAT=1 THEN ENDPROC
680REPEAT
690CLS
700VDU31,0,9:INPUT" SIZE OF MATRIX Two ( ROW BY COL) : ROW2
%  " BY :"COL2%
710IF ROW2%<1 OR COL2%<1 THEN PRINTTAB(12(      SH"  I Can't
 do that ":PRINTTAB(13,20) PRESS ANY KEY :A=GET
720UNTIL ROW2%>1 AND COL2%>1
730PROC_CHECK(ROW1%,COL1%,ROW2%,COL2%)
740DIM MATRIX2(ROW2%,COL2%)
750DIM MUL(ROW1%,COL2%)
760:
770PROC_ENTRY(ROW2%,COL2%,2)
780DIM MATTRAN1(COL1%,ROW1%)
790DIM MATTRAN2(COL2%,ROW2%)
800:
810ENDPROC
820REM*****************************
830DEFPROC_ENTRY(ROW,COL,matrixno)
840REM*****************************
850CLS
860VDU31,3,0:PRINT" Entry of matrix  ";matrixno;" (ROW BY R
OW)"
870PRINTTAB(0,1);STRING$(20,"_")
880FOR I=1 TO ROW
890YCORD=(I*1)*3
900FOR J=1TO COL
910XCORD=(J-1)*7
920VDU31,XCORD,YCORD
930 IF matrixno=1 THEN INPUT""MATRIX1(I,J) ELSE INPUT""MATRI
X2(I,J)
940NEXTJ
950NEXTI
960PRINTTAB(12,VPOS+4);   O k. ";VDU31,23,VPOS-1:A$=GET$
970IF A$="N" OR A$="n" THEN CLEAR :PROCMATRIX
980ENDPROC
990REM*****************************
1000DEFPROC_MULTIPLY(ROW$MAT)
```

The QL Page

```
[illegible]
[illegible] (ROW1%,COL1%,ROW2%,COL2%)
[illegible]
[illegible] PRINT  MULTIPLYING [illegible] BY [illegible] "
[illegible] PRINT [illegible] STRING$(22,CHR$(246))
[illegible] ROW1%=1 OR [illegible] THEN PRINTTAB([illegible]           NOT P
OSSIBLE [illegible] SOUND1,-12,2"*,7:A=GET:PROC_START
1070 [illegible] =1
1080FOR I=1TO ROW1%
1090FOR J=1TO COL2%
1100FOR K=1TO COL1%
1110MUL(I,J)=MATRIX1(I,K)*MATRIX2(K,J)+MUL(I,J)
1120NEXT
1140PRINTTAB((J*6)+3);YCO);MUL(I,J)
1150NEXT J
1160YCO=YCO+1
1170NEXT
1180PRINTTAB(13,20)"PRESS ANY KEY":A=GET
1190ENDPROC
1200REM*******************************
1210DEFPROCADD(RO,CO)
1220REM*******************************
1230PROC CHECK(ROW1%,COL1%,ROW2%,COL2%)
1240D=0
1250CLS
1260PRINTTAB(15,0);"**********"
1270PRINTTAB(15,1);"  Addition"
1280PRINTTAB(15,2);"**********"
1290D=
1300VDU5
1310FOR I=1 TO RO
1320FOR J=1 TO CO
1330ADD(I,J)=MATRIX1(I,J)+MATRIX2(I,J)
1340C=J*180
1350MOVE C,700-D :PRINTADD(I,J)
1360MOVEC,0
1370NEXT J
1380 D=I*140
1390NEXT I
1400VDU4
1410PRINTTAB(13,20) PRESS ANY KEY":A=GET
1420ENDPROC
1430REM*******************************
1440DEFPROCSUBTRACT(RO,CO)
1450REM*******************************
1460D=0
1470CLS
1480PRINTTAB(12,0);STRING$(17,CHR$(245))
1490PRINTTAB(12,1);"     SUBTRACTION   "
1500PRINTTAB(12,2);STRING$(17,CHR$(245))
1510D=
1520VDU5
1530FOR I=1 TO RO
1540FOR J=1 TO CO
1550MIN(I,J)=MATRIX1(I,J)-MATRIX2(I,J)
1560C=J*180
1570MOVE C,700-D :PRINTMIN(I,J)
1580MOVE0,0
1590NEXT J
1600  D=I*140
1610NEXT I
1620VDU4
1630PRINTTAB(13,20)"PRESS ANY KEY"
1640A=GET
1650ENDPROC
1660REM*******************************
1670DEFPROC_SAVE(RO,CO,RO2,CO2,NOofMATRICES)
1680REM*******************************
1690REPEAT
1700CLS
1710VDU31,8,2;PRINT" SAVE MATRIX TO DISC "
1720PRINTTAB(5,3);STRING$(29,CHR$(245))
1730PRINTTAB(0,8);" PLEASE ENTER FILE-NAME (MAX 3 LETTER) "
1740VDU31,12,12:PRINT"---"
1750VDU31,12,11:INPUT""FILENAME$
1760IF LEN(FILENAME$)>3 THEN PRINTTAB(2,20);"FILENAME MUST
 BE LESS THEN 3 LETTERS !";SOUND1,-12,200,12:A=INKEY(300)
1770UNTIL LEN(FILENAME$)<=3
1780:
1790REM*******************************
1800REM       SAVE DIM FOR MATRIX 1
1810REM*******************************
1820A=OPENOUT(FILENAME$+"DIM1")
1830PRINT#A,RO,CO,NOofMATRICES
1840CLOSE#A
1850REM______________________________
1860REM       SAVE MATRIX 1
1870REM______________________________
1880B=OPENOUT(FILENAME$+"MAT1")
1890FOR I=1TO RO
1900FOR J=1TO CO
1910PRINT#B,MATRIX1(I,J)
1920NEXT J
1930NEXT I
1940CLOSE#B
1950IF NOofMATRICES<>2 THEN 2120
1960REM------------------------------
1970REM   SAVE DIM FOR MATRIX 2
1980REM------------------------------
1990C=OPENOUT(FILENAME$+"DIM2")
2000PRINT#C,RO2,CO2
2010CLOSE#C
2020REM------------------------------
2030REM   SAVE MATRIX 2
2040REM------------------------------
2050D=OPENOUT(FILENAME$+"MAT2")
2060FOR I=1TO ROW2%
2070FOR J=1TO COL2%
2080PRINT#D,MATRIX2(I,J)
2090NEXT J
2100NEXT I
2110CLOSE#D
2120PRINTTAB(13,27)"SAVE  COMPLETED";  TAB(13);" PRESS ANY
 KEY"
2130A=GET
2140ENDPROC
2150REM*******************************
2160DEFPROC_LOAD
2170REM*******************************
2180CLS
2190 VDU31,12,2:PRINT" LOADING MATRIX "
2200PRINTTAB(9,3)STRING$(20,"-")
2210:
2220VDU31,0,5:INPUT" ENTER NAME GIVEN TO FILE  >> "FILENAME$
2230REM ______________________________
2240REM      LOAD DIM FOR MATRIX1
2250REM______________________________
2260E=OPENIN(FILENAME$+"DIM1")
2270INPUT#E rows,columns,amount
2280PRINT
2290PRINT;"ROWS-";rows;" COLUMNS-";columns;"  NO. OF MATRIC
ES ";amount
2300CLOSE#E
2310DIM MATRIX1(rows,columns)
2320DIM ADD(rows,columns)
2330DIM MIN(rows,columns)
2340DIM MATTRAN1(rows,columns)
2350ROW1%=rows:COL1%=columns
2360PRINT
2370REM______________________________
2380REM       LOAD MATRIX 1
2390REM ______________________________
2400F=OPENIN(FILENAME$+"MAT1")
2410FOR B=1TO rows
2420FOR C=1TO columns
2430INPUT#F,MATRIX1(B,C)
2440PRINT;MATRIX1(B,C);",";
2450NEXT
2460PRINT:PRINT
2470NEXT
2480CLOSE#F
2490PRINT"            PRESS  ANY KEY"
2500A=GET
2510 IF amount<>2 THEN ENDPROC
2520REM______________________________
2530REM       LOAD DIM FOR MATRIX2
2540REM ______________________________
2550G=OPENIN(FILENAME$+"DIM2")
2560INPUT#G,rows2,columns2
2570PRINT
2580PRINT"ROWS ";rows2;"     COLUMNS ";columns2
2590CLOSE#G
2600DIM MATRIX2(rows2,columns2)
2610DIM MUL(rows,columns2)
2620DIM MATTRAN2(rows2,columns2)
2630ROW2%=rows2:COL2%=columns2
2640NOofMAT=2
2650PRINT
2660REM______________________________
2670REM         LOAD MATRIX2
2680REM______________________________
2690H=OPENIN(FILENAME$+"MAT2")
2700FORB=1TO rows2
2710FORC=1TO columns2
2720INPUT#H,MATRIX2(B,C)
2730PRINT;MATRIX2(B,C);",";
2740NEXT
2750PRINT:PRINT
2760NEXT
2770CLOSE#H
2780PRINTTAB(13,28);" PRESS ANY KEY "
2790A=KEY
2800ENDPROC
2810REM*******************************
2820DEFPROC_TRANSPOSE(RW,CL,RW2,CL2)
2830REM*******************************
2840C=0:D=0
2850REPEAT
2860CLS
2870PRINTTAB(12,1);" TRANSPOSE "
2880PRINTTAB(12,2);STRING$(11,CHR$245)
2890VDU(8):INPUT"Which matrix do you wish to TRANSPOSE >"ANS
2900UNTIL ANS=1 OR ANS=2
2910IF ANS=1 THEN RW=RW AND CL=CL ELSE RW=RW2 AND CL=CL2
2920REM  IF ANS=1 THEN DIM MATTRAN1(CL,RW) ELSE DIM MATTRAN
2(CL2,RW2)
2930VDU5
2940FOR I=1 TO RW
2950FOR J=1 TO CL
2960 IF ANS=1 THEN MATTRAN1(J,I)=MATRIX1(I,J) ELSE MATTRAN2
(J,I)=MATRIX2(I,J)
2970C=J*R0
2980MOVEC+100,850-D:IF ANS=1 THEN PRINT;MATTRAN1(J,I)  ELSE
 PRINT;MATTRAN2(J,I)
2990NEXT J
3000  D=I*140
3010NEXT I
3020VDU4
3030PRINTTAB(13,28)"PRESS ANY KEY"
3040A=GET
3050ENDPROC
3060REM ******************************
3070REM *     ERROR  DETECTING      *
3080REM ******************************
3090DEFPROC_CHECK(R1,C1,R2,C2)
3100CLS
3110IF R1<>R2 OR C1<>C2 THEN PRINTTAB(2,20);" ADDITION & SU
BTRACTION NOT POSSIBLE":A=GET:IF C1<>R2 THEN PRINTTAB(2,17)
;"  MULTIPLICATION  NOT  POSSIBLE  WITH INITIAL MATRICES.";
A=GET
3120:
3130ENDPROC
```

Eureka!

HERE'S WHAT YOU'VE SAID...

Dear Sir,

Wimborne,
Dorset, BH22 0EY

I must congratulate you on a marvellous game, we purchased Eureka direct from you way back in October, & the whole family have had many amusing hours playing it. Eureka is tremendous value for money, considering there are 5 games included in the price. We have purchased other games recently of round about the £10 mark which we have considered to be daylight robbery! & the interest value has lasted about 1 hour!

So congratulations again, keep up the good work!

Yours faithfully,

J Smart (Mrs)

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Cross references

Be no longer muddled by matrices after typing in this program for the BBC by ***S Alg***

Here is a program that allows the addition, subtraction, multiplication or transposition of two matrices, which themselves may be saved or loaded via a file Its main objectives, however, are to show how a menu-driven program can be quite easily implemented, and how data can be saved and loaded on tape The structure of the program is self-explanatory, using meaningful names and identifiable procedures

Program Notes

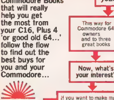
Procmatrix	– Initialises the matrices
Procentry	– Entry of the matrices
Procmultiply	– Multiplication of the matrices
Procadd	– Addition of the same
Procsubtract	– Subtraction of matrices

```
100 CLEAR
10 DIM board(99),a(8)
20 left=60:cflag=0
30 init
40 score
50 REPeat game
60 player1=1:player2=2
70 color=7
80 keyin
90 IF valid THEN
00   score
10   player1=2:player2=1
20   computer
30  ELSE
40   errmess
50  END IF
60 END REPeat game
70 STOP
80 :
90 :
00 DEFine PROCedure play
10 valid=0
20 FOR rd=0 TO 7
30  check=a(rd):ofset=1
40  REPeat loop
50   direct=key+(ofset*check)
60   IF board(direct)<  player2 THEN EXIT loop
70   ofset=ofset+1
80  END REPeat loop
90  IF board(direct)= player1 THEN
00   REPeat loop1
10   ofset=ofset-1
20   direct=key+(ofset*check)
30   IF board(direct)= player1 THEN EXIT loop1
40    IF cflag THEN cflag=0.mov key$
50    board(direct)= player1
60    LET d$=direct:mov d$
70    valid=1
80   END REPeat loop1
90  END IF
00 END FOR rd
10 END DEFine
20 :
30 :
40 DEFine PROCedure init
50 PAPER £0,5:INK £0,1:CLS £0
60 OPEN £6,scr_295x200a33x16
70 OPEN £7,scr_154x200a327x16
80 PAPER £7,7:INK £7,2:CLS £7
90 CSIZE £7,2,1
600 PRINT £7,\\\"  OTHELLO\CSIZE £7,1,0
10 PRINT £7,\\' M.Scorer \ " (c) 1984
15 INK £7,1
20 PAPER £6,4:INK £6,0
30 CLS £6
40 CSIZE £6,1,0:PRINT £6,'  1 2 3 4 5 6 7 8'
00   score
10   player1=2:player2=1
20   computer
30  ELSE
40   errmess
50  END IF
60 END REPeat game
70 STOP
80 :
90 :
00 DEFine PROCedure play
10 valid=0
20 FOR rd=0 TO 7
30  check=a(rd):ofset=1
40  REPeat loop
50   direct=key+(ofset*check)
60   IF board(direct)   player2 THEN EXIT loop
70   ofset=ofset+1
80  END REPeat loop
90  IF board(direct)= player1 THEN
00   REPeat loop1
10   ofset=ofset 1
20   direct=key+(ofset*check)
30   IF board(direct)= player1 THEN EXIT loop1
40    IF cflag THEN cflag=0:mov key$
50    board(direct)= player1
60    LET d$=direct:mov d$
70    valid=1
80   END REPeat loop1
90  END IF
00 END FOR rd
10 END DEFine
20 :
30 .
40 DEFine PROCedure init
50 PAPER £0,5:INK £0,1:CLS £0
60 OPEN £6,scr_295x200a33x16
70 OPEN £7,scr_154x200a327x16
80 PAPER £7,7:INK £7,2:CLS £7
90 CSIZE £7,2,1
00 PRINT £7,\\\'  OTHELLO':CSIZE £7,1,0
10 PRINT £7,\\' M Scorer"\ " (c) 1984'
15 INK £7,1
20 PAPER £6,4:INK £6,0
30 CLS £6
40 CSIZE £6,1,0:PRINT £6,"  1 2 3 4 5 6 7 8"
50 FOR i= 1 TO 8:CURSOR 100 CLEAR
10 DIM board(99),a(8)
20 left=60:cflag=0
30 init
40 score
50 REPeat game
60 player1=1:player2=2
70 color=7
80 keyin
90 IF valid THEN
```

```
50 FOR i= 1 TO 8:CURSOR £6,0,22*i+1:
PRINT £6,i:NEXT i
60 FOR x= 0 TO 96 STEP 12
70 LINE £6,8,x TO 104,x
80 NEXT x
90 FOR x= 8 TO 112 STEP 12
00 LINE £6,x,0 TO x,96
10 NEXT x
20 board(44)=1:board(55)=1
30 board(45)=2:board(54)=2
40 color =7:mov '44':mov  55"
50 color =0:mov  45":mov '54"
60 RESTORE 800
70 FOR i= 0 TO 7:READ x:a(i)=x:NEXT i
80 END DEFine
90 :
00 DATA 9,10,1,11,-9,-10,-1,-11
10 :
20 DEFine PROCedure mov(x$)
30 LOCal x%,y%
40 LET y%=102-(x$(1)*12)
50 LET y%=(x$(2)*12)+2
60 INK color:FILL 1:CIRCLE y%, 4.5:FILL 0
70 END DEFine
80 :
90 :
00 DEFine PROCedure keyin
10 REPeat 11
20 color=7
30 CLS£0
40 PRINT £0, WHITE TO MOVE"
50 INPUT £0,'Your move is ?"!key$
60 IF key$= s THEN valid=1:EXIT 11
70 IF LEN(key$)= 2 AND key$(1) 0 AND key$(1)
9 AND key$(2  0 AND key$(2  9 THEN
80  LET key=key$
90  IF board(key)=0 THEN
000    board(key)=player1:mov key$
010    play
020  END IF
030 ELSE
040  errmess
050 END IF
060  IF valid THEN
070  EXIT  1
080 ELSE
 90  errmess
100 END IF
110 END REPeat 11
120 END DEFine
130 :
140 :
150 DEFine PROCedure computer
160 CLS £0
170 PRINT £0,'BLACK TO MOVE-
180 PRINT £0, My move is
190 RESTORE 1340:color=0
200 REPeat 12
210 READ key
220 IF key=0 THEN swap:EXIT 12
230 IF board(key) 0 THEN
240 board(key)=2:cflag=1
250 LET key$=key
260 play
270 IF valid THEN score:EXIT 12
280 board(key)=0
290 END IF
300 END REPeat 12
310 END DEFine
320 :
330 .
340 DATA 11,18,81,88,13,31,33,16,38,36,61,83
350 DATA 63,68,86,66,34,35,43,53,64,65,46,56
360 DATA 41,51,14,15,84,85,48,58,24,42,25,52
370 DATA 57,75,47,74,23,32,26,37,62,73,67,76
380 DATA 12,21,17,28,71,82,87,78,22,27,72,77,
390 DEFine PROCedure errmess
400 color=4:mov key$
410 CLS£0
420  PRINT £0, Invalid move'
430  board(key)=0
440  PAUSE 100
450  END DEFine
460 DEFine PROCedure swap
470 CLS£0:PRINT£0,'BLACK UNABLE TO MOVE'
480 PAUSE 100
490 END DEFine
500 DEFine PROCedure score
510 LOCal left,scor1,scor2
520 left=0:scor1=0:scor2=0
530 FOR i=10 TO 80 STEP 10
540 FOR x=1 TO 8
550 IF board(i+x)=0 THEN left=left+1
560 IF board(i+x)=1 THEN scor1=scor1+1
570 IF board(i+x)=2 THEN scor2=scor2+1
580 END FOR x
590 END FOR i
600 AT £7,17,0
610 PRINT £7, 'WHITE=";scor1;" "
620 AT £7,18,0
630 PRINT £7,  BLACK=";scor2;" '
640 IF left=0 THEN done
650 END DEFine
660 DEFine PROCedure done
670  CLS £0:PRINT £0,'G A M E  O V E R
680 INPUT £0,'Would you like another game
(Y/N) ? ;key$
690 IF key$(1)="y" THEN
700   RUN
710 ELSE
720 STOP
730 END DEFine
```

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Brian Lloyd has written the definitive book for everyone starting to use the superb new Commodore C16 and Plus4 micros. You'll soon be able to get programming in BASIC and at the end of a great read you'll be well on your way to producing hi-res graphics and doing some very neat disk file handling, for instance, all without getting defeated by needless technicalities. The Commodore C16/Plus4 Companion is a must for every owner and user, and it's only £5 95

Inside every Commodore C64 sits SID, the unique and very powerful sound Interface Device. Understand and make good use of SID and you've got a wonderfully musical micro. Ian Waugh's book lets you use SID to the fullest with programs to produce chorus, echo polyphony, even sound effects. Start playing around with your 64, and let it make music for you. The book's only £6 95 too

Concentrating on the Commodore C64 as a controller or peripheral to other music making goodies, Mark Jenkins – technical editor of Melody Maker – has produced a superb new book that lets you into all the secrets of the 64's very powerful sound generation system. At only £6 95, its novel approach is a must for both musicians and micro enthusiasts

There's no doubt that everyone's talking about Logo – and here's your chance as a Commodore 64 owner to discover what all the fuss is about. Logo helps you liberate the real potential of your 64, creating great sounds, super graphics and the most effective sprites you've ever seen. Once you've used Logo, there's no going back to Basic! Boris Allen's book will cost you just £6 95

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Loop Analysis

on Spectrum

Many different techniques have been developed for the analysis of electric circuits. This program uses a method known as Mesh or Loop Analysis, in which a set of simultaneous equations is set up (one equation for each loop), and are solved to determine the loop currents. The program can evaluate the branch currents in any circuit with two loops and in many circuits with three loops.

The main body of the routine is contained within Lines 10-90. Subroutine *In* requests the data required and stores it in array *R* and array *V*. The simultaneous equations are solved using a method developed by Cramer, an 18th century Italian mathematician. The first part of the solution is carried out in subroutine *Calc 2* (for a circuit with two loops) or *Calc 3* (for one with three). Subroutine *Soltn* completes the calculation and displays the results.

```
  10 LET IN=100: LET CALC2=300
: LET CALC3=350: LET SOLTN=400
  20 PRINT "CHOOSE THE TYPE OF C
IRCUIT"''"TO BE ANALYSED"''''"(1)
 TWO LOOPS"''"(2) THREE LOOPS"''
''''"TYPE (1) OR (2)"
  30 INPUT T
  40 DIM R(T+1,T+1): DIM V(T+1):
 DIM I(T+1): DIM D(T+1)
  50 GO SUB IN
  60 IF T=1 THEN GO SUB CALC2
  70 IF T=2 THEN GO SUB CALC3
  80 GO SUB SOLTN
  90 STOP
 100 FOR N=1 TO T+1
 110 CLS
 120 PRINT "ENTER SUM OF RESISTA
NCE"''"IN LOOP ",N," IN OHMS",
 125 INPUT R(N,N)
 130 CLS
 140 PRINT "ENTER THE ALGEBRAIC
SUM (IN"''"VOLTS) OF THE EMFS IN
 LOOP ",N,",''"GOING ROUND THE
LOOP IN A"''"CLOCKWISE DIRECTION
"
 145 INPUT V(N)
 150 NEXT N
 160 FOR N=1 TO T
 170 LET M=N+1
 180 CLS
 190 PRINT "ENTER TOTAL RESISTAN
CE"''"COMMON TO LOOPS ",N," AND
",M
 200 INPUT R(N,M)
 210 LET R(N,M)=-R(N,M)
 220 CLS
 230 IF N=2 THEN LET M=1: LET N=
N+1: GO TO 190
 240 NEXT N
 250 RETURN
 300 LET D=R(1,1)*R(2,2)-R(1,2)*
R(1,2)
 310 LET D(1)=V(1)*R(2,2)-V(2)*R
(1,2)
 320 LET D(2)=V(2)*R(1,1)-V(1)*R
(1,2)
 330 RETURN
 350 LET D=R(1,1)*(R(2,2)*R(3,3)
-R(2,3)*R(2,3))-R(1,2)*(R(1,2)*R
(3,3)-R(3,1)*R(2,3))+R(3,1)*(R(1
,2)*R(2,3)-R(3,1)*R(2,2))
 360 LET D(1)=V(1)*(R(2,2)*R(3,3
)-R(2,3)*R(2,3))-V(2)*(R(1,2)*R(
3,3)-R(2,3)*R(3,1))+V(3)*(R(1,2)
*R(2,3)-R(3,1)*R(2,2))
 370 LET D(2)=R(1,1)*(V(2)*R(3,3
```

The Music Box

Frankfurt report

More news from the Frankfurt Music Fair this week. JMS (otherwise known as Jellinghaus), who already produce a *Midi* interface and some sequencing software for the Commodore 64, announced the RMS 28C score writer program, a *Midi* master interface and the CG-X interface.

The score writer includes its own processor and allows the transposition of real-time compositions into written form. The processor will apparently tidy up your playing, adjusting timing inaccuracies by calculating acceptable note values according to context (presumably using the melody as a guide).

The synchroniser allows you to synchronise a *Midi* set-up with any clock pulses and enables sync signals to be sent and received from tape, while the CG-X interface is designed to enable analogue synthesizers to interface with a *Midi* system – presumably by use of analogue-to-digital and digital-to-analogue converters. Further information on these three from Rosetti Limited, 138-140 Old Street, London EC1V 9BL (01-253 7294).

Casio's Frankfurt contribution included their own range of synths, including the *Midi* compatible CZ-101, its full-sized (and full priced) companion the CZ-1000 and the professional touch-sensitive CT-6000. Casio are also releasing a range of cheap package devices – the MT-85 ROM-pack synth designed for teaching, the budget-priced MT-36, mini-keyboards MT-100 and MT-210 with built-in accompaniment features and the CK-500 which includes a polyphonic keyboard, 4-track twin cassette recorder and a radio! Further details from Casio Electronics Ltd., Unit 6, 1000 North Circular Road, London NW2 7JD (01-450 9131).

Finally, more news for the serious Commodore owning musician. Allen and Heath Brenell produce a digitally controlled mixer called the CMC. At Frankfurt, they unveiled the CMI 64 and CMS 64 peripherals for this mixer. The CMI allows a Commodore 64 to control the CMS mixer using ROM-based software plugged into the Commodore's cartridge slot. The features include channel indexing, track indexing, route paging and 2048 event sequencer. The CMS expands the sequencing capability of the CMI, allows synchronisation to a drum machine and enables the user to write and read a tie code to and from tape for reliable track and mix-down synchronization. For further information on these devices, please contact this column.

Gary Herman

The Music Box is a weekly column with news, reviews and readers comments on all aspects of micros and music.

Any readers with experience of computer music making or companies with new product news are invited to write to drop a line explaining what they're doing to Gary Herman, The Music Box, 12-13 Little Newport Street, London WC2R 3LD.

```
)-V(3)*R(2,3))-R(1,2)*(V(1)*R(3,
3)-V(3)*R(3,1))+R(3,1)*(V(1)*R(2
,3)-V(2)*R(3,1))
 380 LET D(3)=R(1,1)*(V(3)*R(2,2
)-V(2)*R(2,3))-R(1,2)*(V(3)*R(1,
2)-V(1)*R(2,3))+R(3,1)*(V(2)*R(1
,2)-V(1)*R(2,2))
 390 RETURN
 400 IF D=0 THEN PRINT "****** N
O SOLUTION ******"  STOP
 405 PRINT "********",T+1," LOOP
 CIRCUIT ********"'
 410 FOR N=1 TO T+1
 415 LET I(N)=D(N)/D
 420 PRINT "CURRENT IN RESISTORS
 COMMON ONLYTO LOOP ",N," = ",R6
5 (1e-6*INT (1e6*I(N)))," AMPS "
'
 430 NEXT N
 440 FOR N=1 TO T
 450 LET M=N+1
 460 PRINT "CURRENT IN BRANCH CO
MMON TO""LOOPS ",N," AND ",M,"
= ",R6S (1e-6*INT (1e6*(I(N)-I(M
)))," AMPS"''
 470 IF N=2 THEN LET M=1  LET N=
N+1  GO TO 460
 480 NEXT N
 485 PRINT "*********************
***********"
 490 RETURN
```

Loop Analysis
by Ian McCallum

3D Wave

on Spectrum

This program written for the 16K or 48K Spectrum enables you to travel inside and around a 3-dimensional sine wave This is achieved using the following controls

5 – travel to the right of the wave
8 – travel to the left of the wave
6 – increase the amplitude of the wave
7 – decrease the amplitude of the wave
4 – travel to the right of the wave (pst)
9 – travel to the left of the wave (pst)
0 – go inside the wave
2 – reverse out of the wave
1 – create a reflection of the wave

Program Notes

20	Set colours
30-60	Set variables
70-110	Draw wave
120	Check if you have come through wave
130-190	Command input
200-220	Check for limits of the screen
230-240	Go back for update of wave

3D Wave
by D Prokop

Baud Walk

Data on demand

One of the most exciting developments to hit the Comms scene in years, is due to undergo trials in the UK during the summer. Called *Bitstream* the service is very similar to the current Packet Switch Stream (PSS) network, in that it caters for small and large users alike but with a difference. PSS requires real-time connection, that is, where both the user and the host computer must be connected to the network at the same time in order that communications can take place *Bitstream*, whilst offering this service (via gateways through PSS), also offers what is known as 'Store and Forward' facility.

The backbone of the network will be major highways between main centres, carrying data on a mixture of wide-band circuits Similar in principle to the current PSS network, the highways will carry data 'on demand', that is, they will be available all the time

Down at local level, major users may be connected directly to the bit-stream concentrators (again, similar to major users of PSS, who have datalines to the exchange) Small users on the other hand, will still be able to use their telephones as normal, but during the times when the 'phone is not in use, the local exchange will 'call' the phone and dump data to the modem All this will be user-transparent, and what it in effect gives to end-users, is an electronic post-box right in the house No longer will it be neccessary for you to call up Prestel, Telecom Gold or the like, they will call you!

The advantages are mind-blowing For example, the Gas and Electric companies will 'call' your meter and read it electronically in the middle of the night, whilst you sleep, and, eventually, when the utility services catch-up, they will even be able to transmit an instant invoice to your in-house electronic mailbox!

Datacalls need not be interrupted when the receiver is lifted, as, with a little technical ingenuity, interleaving of voice and datacalls can be carried out The technical term for this is *time division multiplexing* and it's a well tried and trusted method of compressing a data-quart into a pint pot Modems capable of *tdm* are already being marketed in the States at around the $500 mark, although the price will soon drop to a more realistic level. *Bitstream* will be piloted in three major towns during mid-1985, and will enable users, and providers of the service to evaluate the possibilities for the future More information from BitStream Marketing British Telecom, 151 Gower Street, London WC1E 6BA

Robin Wilkinson

Baud Walk is a new weekly column with news on networking databases reviews of modems and software and points of contact for information.
Any readers with experience of networking are asked to send their experiences or news of services to Robin Wilkinson, Baud Walk *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7LD He can also be contacted on Prestel mailbox [illegible]



Old favourites

Back to some old favourites this week Peter Dodd and Michael McKey of Ambleside and Windermere in Cumbria have completed "one of the best arcade games currently available", *Pyjamarama* with 81% and 6188 paces Neil Unitt and Stuart Lves of who knows where have finished with 92% and 4815 steps and 86% and 5131 steps respectively Vernon and Russell Hutter of Dulverton, Somerset, finished with 87% Congratulations all of you and thanks for the tips but I think we've published enough of those for the time being.

Darren Stanley and Johnathon Scarisbick of Worthing completed *Underwurlde* with 38% and 17,397 and 79%, no score given, each. They have found only 516 locations and their hint is "bounce in the right places and you're through". Perhaps more helpful is this tip from Robert Haslom of Leeds who suggests standing next to a guardian and wait until a monster hits your back at 45 degrees Eventually you will be pushed past Using this method he finished with a score of 22% Neil Hibbs of Manchester does not give his score but tells us that the torch and the bow are usually found once you get past the beetle, although sometimes the torch is found past the gargoyle Special thanks go to Chris Simpson of St Helens (BSc, A R C S pending – who says that games aren't intellectually demanding?) who finished with only 28% and sends his tips "The maze is 16 screens wide by 52 deep and I have managed to map 565 rooms with some still to visit. The devil is found on level 17, 2 rooms from left and the exit that I found is up from level 1 and 3 rooms from the right. If the bow is found on level 12, far right, then the sword will be on level 16, 6 from right, and the torch on level 23, 8 from right There is then no need to go beneath level 23" Chris has also finished *Knight Lore* with a score of 69%.

Sticking with Ultimate for a minute Helen Norton of Burton on Trent wants infinite lives for *Atic Atac* for her son – try merging the header program instead of running it As soon as the computer says OK on the bottom of the screen stop the tape and list it You will see that it has a line number of 0 so it cannot be edited until you type *Poke* 23756,1 (enter) Then *Edit* the line and immediately before the *Print Usr* statement insert. *Poke* 36518,0· Then type *Run* (enter) and restart the tape. Andrew Watts of Withersfield has some problems about the same game The parts of the key have the letters ACG written on them and are not too hard to recognise One of the bits looks like a trumpet when on its own, and one bit is like a crown. They have to be assembled in the right order before you can escape The headless man you talk of must be the hunchback and to get past him you must drop a bag of money in one of the corners of the room As for what kills the devil I have to confess I don't know off-hand as when I played the game I just dodged past him.

Tony Kendle

The Arcade Corner is a new section for anyone who enjoys playing arcade games If you have any comments from playing tips on difficult games or programs you'd particularly like to praise (or blame!) then write to Tony Kendle Arcade Avenue *Popular Computing Weekly* 12-13 Little Newport Street London WC2R 3LD

★ ★ Games Wizard Competition ★ ★

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Study the table below and look at the column for the machine you have – these are the games you'll need to master Send your high scores in on the form below, making sure that your scores are authenticated by a responsible individual signing the form Please don't be tempted to cheat and get your pet budgie or unscrupulous friend to authenticate some outrageous score, because the top scorers will be asked to come in at the semi-final stage of the competition and prove just how good they are Any score achieved using technical short-cuts – such as infinite lives Pokes – will not be accepted

Between now and September Tony Kendle will be keeping you up to date on the *Arcade Avenue* page with just who has the scores to beat Then, in September, the top three scorers on each machine will battle it out for a place in the final and the chance to be the first to play our 'top secret' games

	Commodore	BBC	Spectrum	Amstrad
Game 1	Suicide Express	Elite	Technician Ted	Sorcery
Game 2	Beach Head	Jet Pac	3D Star Strike	Splat!
Game 3	Shoot the Rapids	Chuckie Egg	Cyclone	Manic Miner

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Tony Bridge's Adventure Corner



Novice adventures

This week, and may be even next week, The Grand Elf is going to dig into the huge pile of new adventures and discuss some of them. The first batch are really for novice adventurers, and all would be good investment for the beginner

An adventure that has been going through several re-writes, and is now in its fourth version, is *The Curse of the Seven Faces*, which I mentioned some months ago (in Vol 3 No 29), and was impressed with. in the meantime it has been taken up by Artic, who have apparently licensed it now to Imperial Software of Poole The game is for the Spectrum, but it will shortly be available for the Amstrad too. It's a good old traditional game, with wizards and Trolls and Stupid Peasants (that's you incidentally!) and a well-designed character set that makes the Spectrum version look like a Beeb

One example is this, from early on in the adventure *"You are at the edge of a large, dense, deciduous forest. As you walk between the trees, the old leaves of last autumn crunch loudly underfoot, whilst above you the new buds of spring are blossoming."* Actually, that is one of the short ones – but you can see that there is atmosphere dripping from the rafters!

But good atmosphere on its own is not everything, the adventure has to play well, too – and, fortunately, *The Seven Faces* is a good adventure. All the usual things are here, from Troll Kings to East-West Winding Passages, Mazes, Strange Caverns and The Wizard's Realm and Dragon's Lair Input is very fast, and all the usual commands are recognised, although I found myself resorting to the Thesaurus quite often. This is an adventure which will test the player's vocabulary – a command which will work in one location (such as *Smash Box*) will not work in another (where you have to type *Shatter Window*) I think this is a little unfair

A unique feature is the Buffer Save and Load This means that you are given the option to save, as normal, to tape, or alternatively to a RAM buffer This saves a lot of time, as well as all the hassle of sorting out cassette leads (and getting them wrong at the crucial moment!) Thus the proceedings are speeded up tremendously, and the player is encouraged to more experimentation with tricky situations

Experienced adventurers will charge through it with hardly a backward glance, but beginners will find themselves encouraged and not frustrated in their endeavours I'm not so sure about the price, which is a hefty £8 95 – that's a little over the top, but the adventure is certainly a good addition to your collection (and as far, I've only found three spelling mistakes!) *Imperial Software, 153 Churchill Road, Parkstone, Poole, Dorset*

Much cheaper is *Where am I?* from SF-Soft This is just £2 50 from the address below, and is a Quill'd adventure for the Spectrum The scenario, conceived by A O'Sullivan, concerns an "astronaut lost in Time and Space, trying to get back to your home planet of Eroticon VI, a planet on which everyone is so rich that all they do all day is live out their fantasies While living out your own fantasy, to be the first man through a Black Hole, you get lost" You will have realised by now that *you* are that astronaut! "You are Tele-time-ported to random locations in the Universe You may keep all the *Treasures* you find"

This is another adventure for the beginner – many of the problems and situations will be familiar to those more experienced players From the start, one can go north and come across a tree There are one or two things that you can do with a tree in an adventure, the first being to *Examine Tree*. This quite often yields the sight of a hole which contains some useful object The other thing to do is even more obvious – *Climb Tree*, of course In this case, you can do both, which uncovers a *Rope* which can be used to accomplish the second task, which leads to an advert!

Again, this one is mainly for the novice – objects found in one location almost immediately become useful, and the two-word command structure is predictable SF-Soft have ensured that, although *Where am I?* follows traditional rules, it nevertheless contains some interesting novelties *SF-Soft, 'Glandore', Stradbrook Road, Blackrock, Co Dublin, Ireland*

I have to admit that the next adventure (available for the Spectrum and Commodore 64) was a surprise – and a nice one, at that. After loading (in the Spectrum version, using *Load" " Code*, which we don't often see nowadays), It is obvious that *Waydor* is another solidly traditional adventure It includes illustrations at each location, and these are almost instantaneously drawn – and very charmingly, too Unfortunately, the graphic is presented at each and every visit, there is no facility for switching off the pictures Although the pictures are rather pretty, on the other side of the coin, the text descriptions of the locations are rather sparse

As I said, this is an adventure in the good old sense of lurking monsters, dark caves and castles with raised drawbridges The thing about traditional adventures is that an experienced adventurer will have come across most of the problems before, and will know how to handle most of them. So, there is that raised drawbridge, the vampire which will bite you unless you have first drunk the holy water, the keys in one location and a locked gate in the next

There is also the traditional maze, illustrated at each step, but it's a doddle I'm the world's worst maze-solver, and quake with fear when confronted with any example of this most useful weapon in the adventure-writer's arsenal – but I solved this one in two seconds flat

Waydor is a very good introduction to adventures – it's easily mapped, with lots of useful objects lying around not too far from where they need to be used I said that it was a surprise, and this is because it is deeper and more inventive than would at first appear However, for the experienced adventurer, the problems are not hard enough to give more than a few moments diversion *IMS Software, 143-145 Uxbridge Road, London W13 9AV*

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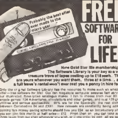
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This series of articles is designed for novice and experienced Adventurers alike Each week Tony Bridge will be looking at different Adventures and advising you on some of the problems and pitfalls you can expect to encounter So if you have an Adventure you want reviewed, or if you are stuck in an Adventure you cannot progress any further write to Tony Bridge Adventure Corner, *Popular Computing Weekly* 12-13 Little Newport Street, London WC2R 3LD



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Sphinx Adventure on BBC Where is the mouse to get past the elephant? Geoffrey Pickard, 93 Green Mostley Basildon, Essex SS16 4DD

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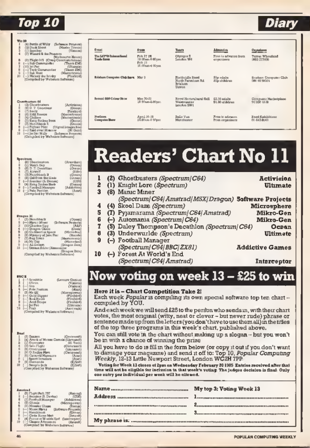
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3 (7) Booty (Firebird)
4 (6) BMX Racers (Mastertronic)
5 (4) Chillers (Mastertronic)
6 (1) Kong Strikes Back (Ocean)
7 (2) Hunchback 2 (Ocean)
8 (—) Fighter Pilot (Digital Integration)
9 (—) Raid over Moscow (US Gold)
10 (—) Jet Set Willy (Software Projects)
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2 (1) Match Day (Ocean)
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3 (1) Chuckie Egg (A&F)
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6 (8) Mystery of Java Star (Shards)
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(Compiled by Websters Software)

Event	From	Venue	Admission	Organisers
The LET'85 International Trade Show	Feb 17-18 10.00am-6.00pm Feb 19 10.00am-4.00pm	Olympia 2 London W6	Free in advance from organisers	Turret Wheatland 0923 777000
Brixham Computer Club Show	Mar 3	Northcliffe Road North Furzeham Rd Brixham Devon	50p adults 30p children	Brixham Computer Club 080 45 59224
Second BBC Colour Show	Mar 20-21 10.00am-6.00pm	Royal Horticultural Hall Westminster London SW1	£2.00 adults £1.50 children	Computer Marketplace 01 930 1818
Northern Computer Show	April 16-18 10.00am-6.00pm	Belle Vue Manchester	Free in advance from organisers	Reed Exhibitions 01-643 8040

Readers' Chart No 11

1	(2)	Ghostbusters (*Spectrum/C64*)	**Activision**
2	(1)	Knight Lore (*Spectrum*)	**Ultimate**
3	(8)	Manic Miner (*Spectrum/C64/Amstrad/MSX/Dragon*)	**Software Projects**
4	(4)	Skool Daze (*Spectrum*)	**Microsphere**
5	(7)	Pyjamarama (*Spectrum/C64/Amstrad*)	**Mikro-Gen**
6	(–)	Automania (*Spectrum/C64*)	**Mikro-Gen**
7	(5)	Daley Thompson's Decathlon (*Spectrum/C64*)	**Ocean**
8	(3)	Underwurlde (*Spectrum*)	**Ultimate**
9	(–)	Football Manager (*Spectrum/C64/BBC/ZX81*)	**Addictive Games**
10	(–)	Forest At World's End (*Spectrum/C64/Amstrad*)	**Interceptor**

Now voting on week 13 – £25 to win

Here it is – Chart Competition Take 2!

Each week *Popular* is compiling its own special software top ten chart – compiled by YOU.

And each week we will send £25 to the person who sends in, with their chart votes, the most original (witty, neat or clever – but never rude) phrase or sentence made up from the letters (you don't have to use them all) in the titles of the top three programs in this week's chart, published above.

You can still vote in the chart without making up a slogan – but you won't be in with a chance of winning the prize.

All you have to do is fill in the form below (or copy it out if you don't want to damage your magazine) and send it off to: Top 10, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP.

Voting for Week 13 closes at 2pm on Wednesday February 20 1985. Entries received after that time will not be eligible for inclusion in that week's voting. The judges decision is final. Only one entry per individual per week will be allowed.

Name .... **My top 3: Voting Week 13**

Address .... 1. ....

.... 2. ....

.... 3. ....

My phrase is ....



New Releases

EXHAUSTING

Here's a funny thing, a wadge of paper and several programs from a company called Chibur Software In this wadge were several reviews of its own software written by its own programmers (not a bad word to be said) and the following remarkable advice.

"Whilst we might derive some benefit from your REVIEWS we would not wish to suffer a reduction of SALES due to the occasional 'damning' REVIEWS we sometimes see in MAGAZINES – often written by people who do not EXHAUSTIVELY test programs" This goes on "You will of course appreciate that expenses for ADVERTISING come from increased SALES of our CHIBUR programs"

The capitals are not mine, but I'm sure Chibur is trying to tell us something I have decided not to make use of the reviews the company provided, but instead offer my own observations.

BMX Champions is the first of the company's new budget range, priced at only £2 50 What you get is a line of variously shaped UDG's and a little blob-like graphic for the bike, controls are left, right, jump, as you try to jump over the UDGs. It's far worse than even the very early Mastertronic £1.99 games

Meteor Rescue and *Attack of the Empire* are both versions of other things *Meteor* is *Lane Rescue*, an arcade game from years ago – dodge the meteors pick up the man, go back to the mothership At £1 99 it would be unexciting, but OK – it costs £5 95 *Attack of the Empire* is a copy of the old Atari games machines program called, I think *The Empire Strikes Back* – pick up men with Snow Speeder, take them to Rebel base, avoid the walkers Let's be generous here – the walkers are quite well done in terms of design, but naff programming makes them flickery In all other respects, the game is poorly programmed and utterly derivative. People have sued for less.

I could go on, but all this EXHAUSTIVE testing of programs has left me, well, exhausted

Program *Attack of the Empire etc*
Price *£5 95*
Micro *Spectrum*
Supplies *Chibor*
3 Lonsdale Street
Leicester

VIRTUOUS

PsiFile is a sophisticated Database for the BBC and Electron. It has the two enormous virtues of being easy to use and very adaptable

Without looking at the manual I managed to set a database, decide what were the key fields, and then successfully access it. This is what computers are supposed to be like.

There is no restriction on the kind of information you may hold and you may use up to 30 fields and record areas, more particularly the program optimises the way memory is used so that nothing is wasted because of unused field area.

There are a number of alternatives for file searching, ends of strings, odd letters in a name, even whole surnames may be represented by 'wild cards', special keys that basically mean you need know very few facts about a particular file in order to find it.

And on it goes, you can edit, create, recreate, save, load, peruse and search to your heart's content with each operation logical and easy to use There is an excellent manual to get you going as well.

Program *PsiFile*
Price *£11 95*
Micro *BBC/Electron*
Supplies *Sigma Press*
5 Alton Road
Wilmslow
Cheshire SK9 5DY

ON THE QUIET

You may have seen some ads for *Confidantial* and it is one of the most entertaining adventures I've seen in a long while Although the packaging is hardly of the same standard, what *Confidential* manages to do is very much what the best Infocom adventures do, ie, gives you a complete package with assorted bits and bobs so that you get totally absorbed in what is, anyway, an excellent adventure

Confidential is, fairly obviously, a detective style game, though the gist of the plot (and indeed the problem) only becomes clear as you play the game The program is *Quill*ed and includes some simple graphics which are by way of a bonus rather than a fundamental part of the game

To accompany the adventure there is a map and a notebook, both of these are essential to solving the problems, rather than simply nice touches. For example, if you solve the first problem correctly you'll discover where the complainant lives, and soon you'll need to get in your car and drive there – not easy without a map

In the first location there are around 10 fundamental things to discover and a basic puzzle about how to leave your office The adventure is wonderful, the map and notebook add a lot, and it only costs £6 95 Excellent.

Program *Confidential*
Price *£6 95*
Micro *Spectrum*
Supplier *Radar Games,*
53 Flavell Street,
Woodsetton,
Dudley,
West Midlands

This Week

Program	Type	Micro	Price	Supplier
Hacker 2000	Ad	BBC	£7 95	Micrograf
Quest for BBC Joystick	Ad	BBC	£4 95	Delta 4
Beeline	Arc	BBC	£6.50	Robico Software
Castle Quest	Arc	BBC	£12.95	Micro Power
Corpuscle	Arc	BBC	£7 95	Micrograf
Trains	S	BBC	£7.95	Micrograf
The Joffe Plan	Ut	BBC	£6.95	Mirrorsoft
The Kel Trilogy	Ad	Commodore 64	£6.95	Incentive
Character + Sprite	Ut	Commodore 64	£12.95	Duckworth
Castle Dracula	Ad	Commodore 64	£7.95	Duckworth
Colossal Cave Ad	Ad	Commodore 64	£7.95	Duckworth
3D Skramble	Arc	Commodore 64	£6.95	Live Wire
Carry on Laughing	Arc	Commodore 64	£6 95	Live Wire
Spy vs Spy	Arc	Commodore 64	£9 95	Beyond
Microgo 1	S	Commodore 64	£9.95	Edge Computers
Poker	S	Commodore 64	£5 95	Duckworth
Lunar Crag	Arc	Dragon	£4 00	Pudgan
Mr Wongs Loopy Laund	Arc	MSX	£6 95	Artic
Oricaid	Ut	Oric	£11 99	Micrograft
Confidential	Ad	Spectrum	£6 95	Radar
Moon Create	Arc	Spectrum	£6 95	Incentive
Subterranean Stryker	Arc	Spectrum	£6 95	Insight
Know your PSI Q	Ut	Spectrum	£9.95	Mirrorsoft

New Releases

CARRY OFF

Carry on Laughing is the somewhat unlikely title of the latest release from Live Wire Software. Unfortunately it is not some bizarre graphics adventure starring Barbara Windsor and Kenneth Williams but is instead a rather ropey multi-screen (nine actually) dodge and collect game.

What's good about it is the music programming, which is excellent and the occasional original touch but graphically the game is fairly poor, sprites are poorly designed and messy – many of the shapes could be anything.

The setting is a school and you have to move a little man around each room, turning the pupils crosses into ticks. This involves platforms, ladders, dodging things and jumping across things. One nice touch is that some of the screens provide some slowly bouncing bubbles which your man may jump into for a free lift. Turn all the crosses into ticks and you're on to the next screen. So it goes on.

It isn't dire but isn't good either. With a lot more screens and a graphic designer at work on it, there would have been enough reasonable ideas for a good game, but as it is . . .

Program *Carry on Laughing*
Price *£6.95*
Micro *Commodore 64*
Supplier *Live Wire Software, Progress House, 31/33 Mount Street, Manchester, M3 6LQ*

FANGS

The blurb on the back of *Castle Dracula* is some of the worst I've seen. "Are you courageous? Do you have nerves of steel? Has your TV broken down? If the answer to any of these is 'Yes', then this adventure is for you' – this basically implies that the adventure is such that your TV being broken is good, ie, it is unspeakably bad.

Blurb aside, I think that *Castle Dracula* is an amazingly average adventure. It understands an average number of commands, has an average number of locations (100), has an unexciting theme – Dracula, castles, etc, has no special features like graphics and is boringly laid out on screen.

The actual adventure itself seems reasonable, a lot happens very quickly and the first few locations are full of puzzles – mostly at a pretty simple level, though. *Castle Dracula* might make it as a beginners' adventure where the bare essentials of adventuring are presented, but in all other respects it's uninteresting and, at £7.95, too expensive.

Program *Castle Dracula*
Price *£7.95*
Micro *Commodore 64*
Supplier *Duckworth, The Piano Factory, 43 Gloucester Crescent, London NW1 7DY*

Pick of the week

GOING UNDERGROUND

This is an interesting development – a brand new software house with a first program that is better than good. *Subterranean Stryker* from Insight is very nearly excellent, only its basic lack of originality lets it down.

The game is a mixture of *Defender* and *Fort Apocalypse* – you must pilot your spacecraft through ever more tortuous and obstacle-ridden caverns and pick up little men. Pick up all the men in *each* section without running out fuel and the way to the next section opens up.

Despite the plot the game is extremely addictive and if it is 80% *Defender* it is certainly the best *Defender* I have seen on the Spectrum. The sprites, though small, are well designed and include, amongst other things, a train that speeds through the lower vaults and animated men, who (as though doing hard labour) can be seen chipping away at underground rocks with pickaxes.

It's very difficult and for devotees of the fairly conventional kind of reaction/timing/blasting kind of arcade game, it's enough to keep them brain damaged for days. Hang on a moment, though, it isn't released until March.

Program *Subterranean Stryker*
Price *£6.95*
Micro *Spectrum*
Supplier *Insight, 177 Higher Parr Street, St Helens, Merseyside*

QUESTING

Castle Quest is being promoted, with amazing affrontory as 'probably the most challenging game ever devised for the BBC Micro' – certain to raise the hackles of *Elite* fans everywhere. Daring to suggest such a thing means either that *Castle Quest* is beyond the realms of the mega-amazing or that Micropower are rather silly, or prone to hype, or all three. My voting is Meganess 70%, Hype 20%, Silliness 10%.

Castle Quest is certainly a cut above your average BBC game but this reflects partly on the state of BBC software. It is to platforms-and-ladders arcade adventures what *Elite*

This Week

Star Sphere	Ut	Spectrum	£6.95	Eclipse
Taspro	Ut	Spectrum	£3.95	Seven Stars
The Jeffe Plan	Ut	Spectrum	£9.95	Mirrorsoft
The Micro Office	Ut	Spectrum	£9.95	SD Micro System
Chuckie Egg	Arc	Tatung	£12.95	Tatung
Hunchback	Arc	Tatung	£12.95	Tatung
Oh Mummy!	Arc	Tatung	£12.95	Tatung
Sharkhunter	Arc	Tatung	£12.95	Tatung
Six Games Pack	Arc	Tatung	£19.95	Tatung
Time Trap	Arc	Tatung	£12.95	Tatung
Superchess	Arc	Tatung	£19.95	Tatung
Astro Nut	Arc	Vic20	£9.00	New Horizons
Forces of Zar	Arc	Vic20	£4.00	New Horizons
Cecil	Ut	Vic20	£6.70	New Horizons
Bughurst	Arc	ZX81	£4.00	New Horizons
Chomper	Arc	ZX81	£4.00	New Horizons

Key. **Ad** — adventure/**Arc** — arcade/**Ed** — education/ **S** — strategy-simulation/**Ut** — utility

was to intergalactic 3D space games. It's also very expensive – £12 95 for the cassette and £14 95 for the disc

Devious programming means that *Castle Quest* manages to be vast, well big, anyway, and the variety of the graphics is way beyond what BBC owners have previously become used to The idea is to move your man around a castle looking for some wizard's treasure As you can see Micro Power has not stretched its mind to breaking point in the development of a plot idea

Needless to say, the castle is chock full of guards, funny wobbly things, spiders and nasty looking red objects, among many others There are also some other objects that you will need to get through some sections of the game – this area is where *Castle Quest* really reveals its basic quality It really does work like an adventure, in that the way different objects are used does need some ingenious thought

A neat example of the kind of thing is the prison. Sometimes rather than losing a life you will be 'caught' by the guards and placed in an area known as the prison There is a torch, a stall, a platform and a bed. To get out . . . well let's say that the guards must be distracted and setting fire to your bed would be a good way . . . ah! but you can't reach the torch

In mixing adventure and arcade this game succeeds Well, I have got nowhere near solving it and after quite a few plays, there is plenty left to explore *Castle Quest* is very good indeed, and you won't get tired of it. Personally, I think it's overpriced but that's relative to games on other machines where standard price structure is different.

Program *Castle Quest*
Price *£12.95*
Micro *BBC*
Supplier *Micro Power*
Sheepscar House
Sheepscar Street
South
Leeds LS7 1AD

THARGLESS

Richard Shepherd is soon to release a new adventure, *Upper Gumtree* for the Commodore 64 – probably the first time one of its programs has not been first issued on the Spectrum.

Upper Gumtree is a reasonably sophisticated graphics adventure, the graphics are pleasing enough but not staggering The sophistication lies in the fairly complex language analysis, pseudo independent characters and range of vocabulary

The plot has the immediate virtue of being silly – you don't have to wade through a 500 page tome on the history of the Lords of Tharg instead of the dark mountains of Nang, you find yourself in Upper Gumtree, a nondescript sort of place of which the awful pun in the name is the most distinctive aspect

Upper is suddenly completely transformed by a classic baddie called Blowtovitz who makes hot, cold and Tuesdays disappear completely (I wonder if he could do the same for Mondays) Your task, aided by the amiable Emma and the kleptomaniac Wally, is to stop the professor This in turn involves a vast number of incredibly unlikely events, requiring some logically legitimate but highly lateral thinking Great fun for 64 owners who don't want their adventures to be too earnest

Program *Upper Gumtree*
Price *£6 50*
Micro *Commodore 64*
Supplier *Richard Shepherd Software*
Elm House
23-25 Elmshott Lane
Cippenham
Slough, Berks

BLAST AWAY

It doesn't take a quantum leap of the imagination to guess that something that calls itself *3D Skramble* is going to be amazingly like *Zaxxon*, not that this is necessarily a bad thing?

3D Skramble from Live Wire is amazingly like *Zaxxon* and as such is competing with quite a few other games on the Commodore which could be described in the same way

So what does this *Zaxxon* have that others don't? The answer is very little, but it only costs £6 95 and there isn't actually much wrong with it You get the usual edge-on perspective such that the landscape scrolls from one diagonal to the other. Your task is to pilot your way through an increasingly difficult series of screens.

The design is reasonably well done with the customary shadow beneath the plane and the usual baddies.

It's good enough for the price, it seems to me, if you don't have *Zaxxon*, but there is nothing here to astonish

Program *3D Skramble*
Price *£6 95*
Micro *Commodore 64*
Supplier *Live Wire*
Progress House
31/33 Mount Street
Manchester

Compiled by Graham Taylor

New Releases is designed to let people know what software is coming on the market. If you have a new game or utility which you are about to release send a copy and accompanying details to New Releases, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2R 3LD.

This Week

Artic Main Street Brandesburton, Driffield YO25 8RL 0401 43553 **Beyond** Lector Court 153 Farringdon Road, London EC1R 3AD 01-837 2899 **Delta 4**, The Shialing New Road, Swanmore, Hants SO3 9PE 04893 5800 **Duckworth**, The Old Piano Factory, 43 Gloucester Crescent, London NW1 7DY **Eclipse** 79 Ardrossen Gardens Worcester Park, Surrey KT4 7AX 01-330 3116 **Edge Computers** 3 Junction Road Reading Berks RG1 5SA **Incentive** 54 London Street, Reading RG1 4SQ 0734 591678 **Insight** 177 Higher Parr Street The Fingerpost Shopping Centre St Helens, Merseyside WA9 1AG **Live Wire** Progress House 31/33 Mount Street Manchester M3 6LG **Micro Power** Sheepscar House Sheepscar Street South Leeds LS7 1AD **Micrograf** P O Box 17, Bracknell, Berkshire RG12 3NQ **Mirrorsoft** Mirror Group Holborn Circus, London EC1P 1DQ 01-353 0246 **New Horizons** Four Winds, Leum Lane, Rogerstone, Newport gwent NP1 9AF **Pudgen**, 4 Fieldfare Ave Yateley Surrey GU17 7PD **Radar**, 53 Flavell Street Woodsetton, Dudley West Midlands DY1 4NV **Robico Software** 3 Fairland Close, Llantrisant, Mid Glamorgan CF7 8QU 0443 227354 **SD Micro System** P O Box 24 Hitchin Herts SG4 0AE **Seven Stars** 15 Gloucester Avenue London NW1 7AU 01-485 7775 **Talung**, Stafford Park 10 Telford Shropshire TF3 3AB

The upgrade blues

Working with a micro-computer (of the home variety) can create certain frustrations to the person less concerned with the hobbyist aspect and more involved in applications. By this I mean that traditional software (word processing, spreadsheets and databases) is often stifled, and prevented from reaching their full potential in the £200-£400 market (the price refers to the micro not the software).

Having spent two years battling with 40-column screens, tape-loading and single disc drives, loading errors which destroyed valuable data and many more of the "joys" of home computerisation – the day came when I took delivery of a "real" computer at last.

I had selected the Apricot for a variety of sound and logical reasons (in fact I liked the shape and it seemed to be fair value for money in that bracket) and I looked forward now to twin disc drives, masses of memory, double-density disc space, all the goodies I had come to assume would happen once I was able to afford my "real" computer.

The first signs of a crack in the fabric came on initial loading and attempting to copy my precious systems disc. The Apricot has a user-friendly menu which allows you to position the cursor in the box and automatic loading of the program will occur. But when I attempted this all I could get on screen after pressing *all* the right buttons was the enigmatic message *Disk exec: Not on default drive, press space bar when ready*. The answer was basically quite simple, someone had put the appropriate program on another systems disc and not bothered to mention it in the manual or change the screen message. Not to worry. Micro-users are used to such inconsistencies in manuals. But are Apricot users?

My next surprise came on loading the spreadsheet bundled with the computer. The command *Goto* is represented by the "+" sign in the manual, but try as I might it just wouldn't work. Is it me? Am I pressing all the right keys? Have I missed something in the manual? No, it isn't me, it's that manual again. It seems someone replaced all the "=" signs with "+" signs and what you should do is press "=". Just another few minutes harrassment.

Finally, after a lot of muttering I succeeded in getting my Apricot to load *Wordstar* – the ultimate in word processing. Now things would start to hum.

But wait a minute. *Wordstar* hasn't any facility for addition and subtraction. And I can't save the margins. What about a word count?

The story continues. It seems that more money, two disc drives and masses of memory count for very little when it comes to giving the customer service. I don't mean to criticise the dealers either, it's not always their fault. The main problem seems one of a total inability of the whole computer business to look carefully at what the customer wants.

But it goes deeper than that. Computers often alienate people – and one of the worst things I can imagine is for the new computer user to be faced with all the incomprehensible messages and hassles that older hands now expect. It's okay for the enthusiasts and fanatics – they'll solve the problems because it's part of the fun. But the day of the enthusiast is dying as the mass-consumer market moves in, and unless manufacturers can solve this rift in product communication some dramatic changes will occur.

Perhaps it will be the Japanese (again) who sweep the board because they are concentrating on satisfying what the main bulk of the people want. And is it unreasonable to expect a computer that actually does what it's supposed to and a manual that keeps it simple and is fairly free of mistakes?

To end, please don't think I'm not delighted with my purchase. To copy discs in seconds is a dream, to store and print out whole articles virtually instantly is amazing, and for me the answer definitely is an Apricot.

But I had thought my hassle days would be over. Instead, a new collection have just begun.

Mike Grace

Street-wise

Puzzle No 145

The Jones, Smiths and Robinsons live in three consecutively numbered houses in Poppycock Road. Each family has two daughters, their names being Abigail, Brigitte, Clara, Davina, Erica and Flora. All of their ages are different, although alphabetically their names are in order of age (Abigail being the youngest and Flora the eldest).

By a remarkable coincidence (common only to puzzles of this type), the sums of the squares of the ages of each pair of sisters is equal to their house number.

Can you say who is related to whom, their ages, and their house numbers?

Solution to Puzzle No 140

The answer is, A = 15, B = 99, C = 37 and D = 98.

From the number of digits in the grid, we know that A must be in the range 10 – 21 (clue 3 down) and C must be in the range 32 – 99 as it has a 4-digit square (clue 6 across).

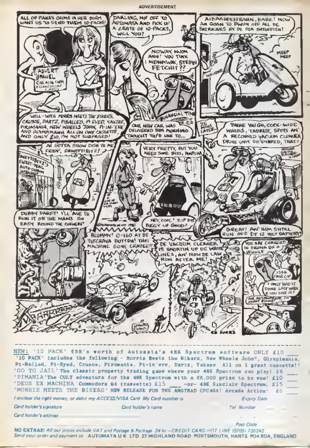
```
10 FOR A=10 TO 21
20 E=A*A:E$=STR$(E)
30 FOR C=32 TO 99
40 F=C*C:F$=STR$(F):C$=STR$(C)
50 IF RIGHT$(E$,1)<>RIGHT$(F$,1)THEN
 GOTO 150
60 G=C-A:G$=STR$(G)
70 IF MID$(E$,2,1)<>MID$(G$,2,1)THEN
 GOTO 150
80 FOR B=INT(1000/A) TO INT(9999/A)
90 H=B*C:H$=STR$(H)
100 IF MID$(H$,1,1)<>MID$(C$,1,1) OR
 MID$(H$,4,1)<>MID$(F$,2,1) THEN
 GOTO 140
110 I=A*B:I$=STR$(I)
120 IF MID$(I$,4,1)<>MID$(F$,1,1)THEN
 GOTO 140
130 PRINT A;" ";B;" ";C
140 NEXT B
150 NEXT C
160 NEXT A
```

This program produces two possible sets of values, but as we have to fit a factor of C in 5 across (C * D) one set is eliminated, leaving the answer.

Winner of Puzzle 140

The winner of Puzzle 140 is Charles Wilford Smith of Ruislip, Middlesex, who receives £10.

The Hackers



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FINANCIAL TIM
AIDASUDEEFRAHN, BABE! NOW AN GOAN TO BWUN OFF ALL DE BATRKCARS BY DE POA SHTOFFISH!
MEEP MEEP
OUR NEW CAR WAS DELIVERED THIS MORNING THOUGHT YOU'D LIKE TO...
AN GOTTA SHOW DISH TO ME FRIEN', SAWETTIBITZ!
SWETTIBITZ'S SWEET-DEAL AUTO-CUSTOM WORKSHOP
DUBBY DARFT' I'LL 'AVE TO RUN IT OFF THE MAINS GO EASY ROUND THE CORNERS'
VERY PRETTY, BUT YOU NEED SOME BITS, DONTCHA
HEY, COOL' ZIP DIS BUGGY UP GOOD!
25 MINS LATER..
THERE YOU GO, COCK-WIDE WHEELS, 'EADREST, SPOTS AN' A RECONNED VACUUM CLEANER DRIVE UNIT DO'UNBRED, THAT!
GREAT! AN' HIM SHTILL RUN OFF DE 12 VOLT BATTERY?
BLUMMY! 0-160 AT DE TUTCHAVA BUTTON! THIS MACHINE GONE CRAZEE!!
DE VACUUM CLEANER IS SNORTIN UP DE WHITE LINES, AN' NOW DE LAW RUN AFTER ME!
YOU ARE CHARGED IN DRUNK OF A VEHICLE
ISSA FAIR COP
I ONLY HAD IT DONE LAST WEEK D YOU LIKE IT?
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